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Psychological Warfare Against Surrounded Troop Units

JFM

Major Martin F. Herz, *Military Intelligence (Reserve)*

IMPORTANT lessons were learned in World War II concerning the effectiveness of combat propaganda in certain tactical situations. This was particularly true in situations where the front was fluid, where our troops were advancing, and where the objective was to lessen the enemy's resistance to capture.

Very likely, leaflet propaganda has contributed to the softening of such enemy resistance by giving the individual enemy soldier assurance that he would be well treated if taken prisoner and by picturing to him the hopelessness of his position.

A special situation exists, however, when the enemy is surrounded. In World War II, conventional combat propaganda techniques were for the most part applied to such enemy troops, and nearly without exception those techniques proved unavailing, if not harmful. By analyzing those situations, certain lessons can be learned.

Corregidor

A Japanese leaflet dropped on Corregidor shortly before the collapse of resistance on Bataan, concluded, quite correctly, that "the fate of Corregidor Island is sealed." (Figure 1.) It is interesting to note, however, that this leaflet chose to impugn the soldierly honor of the Ameri-

can commander, claiming that he would "sacrifice every man and in the end surrender in order to save his life."

There is a great temptation on the part of the propagandist to make such statements. It is undoubtedly true that the commander of any surrounded troop unit, and his immediate staff, are under considerably less physical danger than their command, and that their troops must be aware of that fact and must be asking themselves whether there is any larger benefit in prolonging their resistance. As we shall see, American leaflets, also, have accused surrounded enemy commanders of desiring to "sacrifice every man" and "in the end surrendering" themselves. The psychological falsity of such an accusation, however, is patent in the case under discussion.

Obviously, on Corregidor Island, individual soldiers had no opportunity whatever to make good on individual surrenders, so that the exhortation to "stop resistance at once" could only have meant to disobey commands and possibly to mutiny and effect the surrender in that manner.

However, regardless of whether or not American defenders at that time considered their position hopeless, mutiny and

World War II showed that ultimata may be of doubtful use in securing the surrender of surrounded troop units, and that propaganda attacks against their commander may prove to be psychologically unprofitable

surrender in the face of orders to the contrary were surely out of the question. Consequently, to impugn the honor of the only man who could in effect transact the surrender was probably psychologically unsound. Corregidor, as is well known, had to be taken by storm. General Wainwright only surrendered the Island when Japanese infantry had landed and fought their way to the final American defense line, and when Japanese tanks and flame throwers were in a position to launch an attack against Malinta Tunnel.

It can be said, therefore, that psychological warfare had no part whatever in the surrender of Corregidor. The pressure subsequently applied to General Wainwright to surrender also the troops on Visayan and Mindanao is another matter. The latter case has to do with the threat of reprisals and the use of surrendered Americans as hostages, which is not properly speaking psychological warfare, although it too points to the central importance of the troop commander in any mass surrender situation.

Singapore

Frequent Japanese ultimata were issued before and during the brief but furious battle for Singapore, but all such messages were ignored by General Perceval. What appears to have produced the surrender was no psychological factor but the fact that the two sources of water for the Island, one of them the reservoir below the fortress, were in Japanese hands. The main British force can actually hardly be described as having been surrounded, and at the time of the surrender decision only a part of General Perceval's command was actively engaged.

Had a final battle been joined on the Island, however, its likely location would have been the native living areas inhabited by several hundred thousand Chinese noncombatants. Since the British forces were heavily decimated at the time of the

surrender, and not disposed in a manner that would have allowed them to offer prolonged resistance, the threat to noncombatants (if it were made at that time) can hardly have been a major factor prompting the surrender. In any event, according to available information, the ultimata issued by the Japanese had no connection with the final capitulation.

Bir Hakeim

The interesting ultimatum issued by Field Marshal (then Colonel General) Rommel to General (then Colonel) Pierre Koenig at Bir Hakeim is worthy of analysis. (Figure 2.) Written on a German message pad, this peremptory note told the surrounded Free French outpost that "further resistance means needless shedding of blood. You will suffer the same fate as the two British brigades at Got Jaleb, which were annihilated yesterday." Rommel concluded with the statement: "We shall cease action if you show white flags and come over to us without arms."

It is easy, of course, in retrospect to analyze the reasons why this ultimatum failed. Koenig, in fact, achieved considerable fame by citing in reply the celebrated *mot de Cambronne*, which endeared him to Frenchmen and made him a symbol of toughness and valor. The Free French situation at the time of Rommel's message appeared completely hopeless. Yet, it was obviously impossible for a self-respecting commander to accept such a surrender demand. It contained not the slightest sop to the commander's military honor; it was not even addressed to him. In no way did the ultimatum indicate how the commander could effect the surrender, for the instructions apparently applied only to individual soldiers; and, in fact, it was not even written in the language of the recipient.

It is not meant to be implied here that, if the ultimatum had contained a sop to Koenig's military honor, the surrender

would have taken place. That point will be discussed further below in connection with exhibits which show attempts in that direction. It is easily understood, however, that Rommel's peremptory demand for surrender on pain of "annihilation," permitted only acceptance or rejection, not discussion.

Under the circumstances, therefore, Koenig's enraged reply is easy to understand. Presumably, had a surrender taken place, it would have followed a final heavy German assault. Since the French were able to extricate themselves, the assault never came; and the record of Bir Hakeim is therefore not conclusive.

Cherbourg

In the case of Cherbourg, we have the situation of a very considerable body of troops under heavy assault from land, sea, and air. A demand for immediate surrender was delivered to Lieutenant General von Schlieben, the commander of Cherbourg Fortress, on 25 June 1944. No reply was received to that surrender demand, and since it was known that Hitler himself had issued orders to all German commanders to "*defend their positions regardless of circumstances, to the last man and to the last cartridge,*" the United States commander had no right to expect an early mass surrender.

In fact, on 25 June, few individual Germans surrendered in the immediate fortress area. On 26 June, however, the Fort du Roule, which overlooks the city, having been heavily bombarded but not yet rendered completely defenseless, was stormed; and after heavy fighting, it was surrendered to General M. S. Eddy, Commanding General of the 9th US Infantry Division.

Just as General Wainright on Corregidor initially refused to surrender the forces on Visayan and Mindanao, however, General Schlieben and Konteradmiral Hennecke only surrendered their own forts,

not the entire garrison, which was now largely compressed into the Arsenal area of the city. The Arsenal was heavily fortified, however. In fact, it was itself a fortress; although badly overcrowded, it was not yet defenseless.

Under these circumstances, psychological warfare could be brought to bear successfully. Having demonstrated the sustained power of the American attack, and the fact that the Cotentin Peninsula was out of reach of any effective German relief, the German commander of the remaining troops in the Arsenal area only had to be convinced that his own position was as hopeless as that of General Schlieben, his superior.

No negotiations took place. Faced with the announcement that another major attack was about to be launched, and being given only a limited time to effect the surrender of the remaining troops under his command, Major General Sattler gave orders to show white flags on 27 June, before the announced attack had commenced. The position of the fortress was by this time indeed hopeless, however, and an integrated defense had become impossible.

Here, then, is one case when psychological warfare yielded some success. It is as important, however, to realize that the first surrender demand to von Schlieben was ignored, as it is to recognize that the surrender only took place after a very considerable tactical success had been scored by the attackers.

St. Malo

The defenders of the fortress at St. Malo were in an exceptionally favorable condition, and little need existed on the part of the attackers to sustain heavy personnel losses in order to carry the assault forward. Under these conditions, it was believed that the attack could be left to the propagandists. Leaflet and radio writers proceeded to belabor the

German commander, "mad" Colonel von Auloch, with accusations not essentially different from those leveled by the Japanese against General Wainwright.

Actually, von Auloch held out until his food and ammunition were exhausted. Then, having informed Hitler by radio of the state of affairs, he proceeded to surrender in his own good time. His subsequent interrogation disclosed that the pub-

PROCLAMATION TO THE DEFENDERS OF CORREGIDOR ISLAND

Bataan Peninsula is about swept away; important points of southern Luzon between Ternate and Nasugbu are in the hands of Japanese Forces and mouth of Manila Bay is under complete control of the Japanese Navy. Hopes for the arrival of reinforcements are quite in vain, The fate of Corregidor Island is sealed.

If you continue to resist, the Japanese Forces will by every possible means destroy Corregidor Island and annihilate your forces relentlessly to the last man.

This is your final chance to cease resistance. Further resistance is completely useless.

Your commander will sacrifice every man and in the end will surrender in order to save his life.

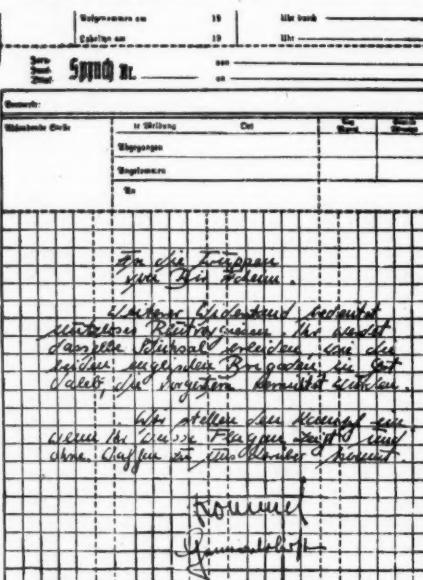
You, dear soldiers, take it into consideration and give up your arms and stop resistance at once.

**Commander-in-Chief of the
Imperial Japanese Forces**

Figure 1 (left) is a Japanese leaflet dropped on Corregidor urging US troops to "cease resistance." **Figure 2 (right)** is Rommel's peremptory note to Koenig.

licity he received from the Allies through their propaganda media was a distinct factor influencing his prolonged resistance. He took special delight in introducing himself to Allied interrogating officers as "the mad colonel of St. Malo." He claimed, perhaps with justification, that Allied propaganda had helped him to earn a promotion to Major General and the award of the coveted "swords" to the Knight's Cross of the Iron Cross.

A somewhat similar situation prevailed at the tip of the Crozon Peninsula where, as in many other defensive situations, individual surrenders on the part of Germans on the perimeter were discouraged by extensive mine fields in front of the German positions. Brest, as is well known, held out until the middle of September 1944, when Allied forces had already reached the German border. Here, too, at



tempts were made to "split" the commander from his troops, including leaflets and radio broadcasts predicting that Lieutenant General von Ramcke would senselessly allow all his troops to be slaughtered. In the absence of a determined attack, however, no special reason existed for Ramcke to accept the surrender demand of General Troy H. Middleton, which included the following passage, designed to save Ramcke's honor:

"Your command has suffered heavy casualties. You have lost much of the necessary implements of war and your men are encircled in a small, congested area. Therefore, it is the consensus of all that you and your command have fulfilled your obligation to your country. In consideration of the preceding, I am calling on you, as one professional soldier to another, to cease the struggle now in progress. I trust, as a professional soldier who has served well and who has already fulfilled his obligation, you will give this request your favorable consideration."

Special interest attaches to the Allied propaganda leaflet that followed Ramcke's rejection of General Middleton's surren-

his desire for the Knight's Cross with swords outweighs his sense of responsibility to his officers and men. Can you go on following a commander who is willing to sacrifice you to a hopeless cause for his own personal glory? In such a case every officer and soldier has the God-given right to make his own decision . . ."

Actually, it was Ramcke who, on 18 Sep-

DEUTSCHE OFFIZIERE UND SOLDATEN IN BREST

Am 13. September 1944 wurde eine Nachricht an General-Lieutenant Ramcke, ihren kommandierenden General, gerichtet mit Anweisungen für eine ehrenhafte Übergabe von Brest. General Ramcke lehnte diesen Vorschlag ab. (Ausgabe der Nachricht und General Ramckes Antwort sind auf der Rückseite zu sehen.)

General Ramcke soll sich entschlossen haben bis zur letzten Kugel und zum letzten Mann aushalten zu wollen. Scheinbar sind seine Halsschmerzen für das »Ritterkreuz mit Schwertern« weit ausschlaggebender als sein Verantwortungsgefühl seinen Offizieren und Soldaten gegenüber.

Können Sie somit einem Kommandant weiterhin F 1 ge-leisten der bereit ist Sie in einer aussichtslosen Lage für eigenmütige Zwecke aufzopfern zu lassen? In solchem Fall hat jeder Offizier und Soldat das gegebene Recht seine eigene Entscheidung zu treffen. Nur er selbst kann jetzt entscheiden ob sein eigenes Leben nutzlos aufgeopfert werden soll, oder ob sein Leben zu retten — nicht nur für sich selbst, sondern auch für seine Familie und für die Zukunft seines Vaterlandes.

Wenn Sie sich amerikanischen Truppen ergeben, sind Sie faire Behandlung zugesichert. Nach Kriegsende kehren Sie als gesunde Männer in Ihre Heimat zurück.

SIE MÜSSEN JETZT IHRE EIGENE ENTSCHEIDUNG TREFFEN!

Hand
Der kommandierende General der
amerikanischen Armees vor Brest.

Figure 3 (left) is an American leaflet (in German) addressed to the defenders of Brest.

Figure 4 (right) is a German leaflet directed to US troops at Bastogne.

der message. (Figure 3.) That leaflet quoted the Middleton message and Ramcke's rejection, and then went on to attack the German commander who, as events showed, was the only man capable of effecting the surrender.

"It is reported that General Ramcke has made the statement that he will hold out to the last bullet and to the last man," the leaflet reads. "It seems evident that

tember, ordered the surrender of Brest. Although it came within a week of the Middleton message, it is hard to believe that the combat propaganda which reviled and attacked him did anything but retard his decision to capitulate.

Aachen

The ultimatum of the First US Army, delivered to the German commander of

the city of Aachen on 10 October 1944, made no attempt to save his honor, and was, in fact, designed for propaganda advantage and to commit the Germans to the defense of the city. It read:

"The city of Aachen is now completely surrounded by American forces, who are sufficiently equipped with both air power and artillery to destroy it if necessary. We shall take the city either by receiving the immediate unconditional surrender or by attacking and destroying it. In other words, there is no middle course.

"You will either unconditionally surrender the city with everything now in it, thus avoiding needless loss of German blood and property, or you may refuse and await its complete destruction. The choice and responsibility are yours. Your answer must be delivered within 24 hours at the location specified by the bearer of this paper."

It is reported that General von Schwerin, the original German commander, inclined toward surrender and even openly opposed the Nazi policy of evacuating civilians, from which it can be deduced that he did not expect a major battle to develop in the city. With the full spotlight of world publicity focussed on Aachen, however, and with Allied propaganda deliberately making a major issue of its defense, the German high command decided to relieve von Schwerin of his command and to appoint in his stead a fanatic, Colonel Gerhard Wilck, who actually converted the city into a battlefield.

Wilck surrendered—impeccably attired and none the worse for his experience—only when almost all of Aachen had been fought over and occupied by the 1st US Infantry Division, and after thousands of soldiers and civilians had perished. The fanaticism of his resistance was subsequently, in Allied propaganda, made a symbol of senseless destruction and shedding of blood, but it established a precedent that proved highly undesirable. It might be said that if ultimata and propaganda had been left aside, it is entirely possible that the city might have been surrendered by von Schwerin, and at an earlier time.

Bastogne

Figure 4 shows the obverse of a leaflet addressed to the American defenders

of Bastogne, after the German ultimatum had been rejected. General McAuliffe's answer to that ultimatum is, of course, well known; but the text of the German message is also of interest. It read:

"To the U.S.A. Commander of the encircled town of Bastogne.

"The fortune of war is changing. This time the U.S.A. forces in and near Bastogne have been encircled by strong German armored units. More German armored units have crossed the river Our near Ortheville, have taken Marche and reached St. Hubert by passing through Homores-Sibret-Tillet. Libramont is in German hands.

"There is only one possibility to save the encircled U.S.A. troops from total annihilation: that is the honorable surrender of the encircled town. In order to think it over, a term of two hours will be granted beginning with the presentation of this note.

"If this proposal should be rejected, one German Arty Corps and six heavy AA Bns are ready to annihilate the U.S.A. troops in and near Bastogne. The order for firing will be given immediately after this two hours' term.

"All the serious civilian losses caused by this Arty fire would not correspond with the well-known American humanity."

The main reason why this ultimatum was rejected, even though General McAuliffe was certainly convinced that a concerted German attack was to be expected, was his knowledge that by holding Bastogne the 101st Airborne Division was fulfilling a vital function in retarding the German advance that was splitting the Western Front.

It may be said that the heroic resistance offered by the command was not only inspired by this important knowledge, but also by extreme doubts as to the practical wisdom of surrendering to Germans. The honeyed last sentence of the German ultimatum therefore fell flat, even though it cannot be assumed that the 101st Airborne Division would have fought to the last man. Only when the enemy takes no prisoners—or when it is believed that he takes no prisoners—do modern Western troops fight to the last man. To say that they might have surrendered eventually, is, of course, no disparagement of the valiant defenders of Bastogne.

Under the circumstances prevailing at the time, the German propaganda leaflet, too, proved highly ineffective. It actually took a defensive line, assuming

(correctly) that the American readers expected to be relieved, and that they knew of the importance of their holding out. However, the German leaflet, especially in its paragraph 3, only confirmed the reader's belief that if the Germans could only be stopped at Bastogne, the entire bulge might be cut off. Under these circumstances, the theme of the senselessness of resistance, which is so important when it comes to addressing individual soldiers who are part of surrounded troop units, could not be made effective.

Conclusions

It remains to draw the conclusions to which the above material appears to point: Ultimata do not seem to be a useful means of securing the surrender of surrounded troop units, nor do propaganda attacks against their commander appear to be psychologically profitable.

On the other hand, when an attack against surrounded troop units has scored successes, and when the precariousness of the enemy commander's position is being actively demonstrated, an approach that salves his honor might well be attempted—particularly in some form other than an ultimatum.*

At Concarneau, the surrender of a German position was achieved by a highly skilled negotiator who, upon being informed that the Germans considered themselves to be defenseless against incendiary shells, arranged to have a "token" phosphorus shell fired against the German position. The same procedure worked in the case of a junior commander in the Cherbourg perimeter.

Parleys are, of course, no shortcut to surrender, but the establishment of contact with the enemy commander may result in eventual profit. Even though the Germans in the La Rochelle area (near St.

Nazaire) did not surrender until the last days of the War, an agreement concluded with Admiral Schirlitz at La Pallice, relating to the non-destruction of the port provided there were no Allied air action, was honored.

In all cases, of course, neither individual surrenders nor capitulation can reasonably be expected if there is no military pressure on the defenders. Thus, for instance, even the attempt to establish contact with the German commander of the Channel Islands, von Schmettow, proved unsuccessful, since the Germans knew that there was not sufficient benefit to the Allies in a major attack against them. Von Schmettow was thus one of the very last Germans to surrender, and he and his troops had a much more comfortable life than if he had given up earlier. When an attack takes place, however, it appears to be considerably better to allow it to proceed, even at the necessary cost it entails, and then to direct a message to the enemy commander. A premature surrender appeal may only serve to stiffen the will of the enemy commander.

A great psychological difference exists between the attitude of the enemy commander and his front-line troops. Throughout an attack, the commander is quite likely to be in little physical danger, and he is usually left only limited discretion with respect to surrendering. The front-line troops, on the other hand, live in dread of an attack by overwhelming forces, but at the same time, they may recognize that such an attack is their best opportunity to surrender. Such troops on a defense perimeter can be treated with combat propaganda, just like other enemy troops. Leaflets assuring the troops good treatment if captured are likely to have some effect, particularly if the leaflets are distributed before an attack, or if they are fired into the enemy positions by artillery during a lull in the fighting.

* See the article, "Some Psychological Lessons from Leaflet Propaganda in World War II," by the same author, in the fall, 1949, issue of *Public Opinion Quarterly*.

PARTISAN OPERATIONS

Colonel Albert E. Harris, *Cavalry*
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The views expressed in this article are the author's and not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

MODERN warfare includes many phases other than just the engagement of armed forces. One of these phases, called "partisan operations," involves the application of economic, political, and psychological, as well as military, pressures. It has proved a valuable weapon in past wars.

It might be well to pause before delving into this subject to present a few definitions. People who are devoted adherents of a party, faction, or cause are classed as partisans. Thus, the American revolutionists, adherents to the cause of freedom, were partisans. On the other hand, members of any subversive group within this country who are followers of a foreign ideology must likewise be classified as partisans.

The dictionaries have defined partisans as members of a detached body of troops engaged in irregular warfare, with the principal mission of harassment. Such a definition is not entirely satisfactory because, in its broader aspects, partisan operations include more than open active resistance by isolated troop units. Partisan operations may be typified by guerrilla action, but they also include the passive resistance of underground groups, as well as related acts of espionage, sabotage, and propaganda.

Historical Basis

The military use of partisans is not a recent innovation. Some specific historical examples will serve to illustrate this point.

During the early years of the settlement of North America, the American Indians were employed as partisans by the French and by the British. The Indians resented encroachment of the colonists on their hunting grounds and were easily persuaded to take up guerrilla warfare against the settlers. The French aided and abetted the Algonquin, the Huron, and part of the Iroquois tribes in a resistance move against the expansion of the colonies from 1753 to 1761. Later, the six Indian nations (Mohawk, Seneca, Cayuga, Oneida, Onondaga, and Tuscarora) were employed by the British as partisans against the colonies. The warfare practiced by these Indians was definitely guerrilla warfare.

In 1808, Napoleon was unable to overcome the partisan forces of the Iberian Peninsula. The Spanish Army was no match for the seasoned, well-armed French forces; but the success of the Spanish partisan groups offset the failures of the Army. The desire of the Spaniards for freedom occasioned widespread uprisings, characterized by stubborn, almost fanatic, resistance. The rugged terrain of Spain was ideally suited to partisan warfare. When Napoleon was finally forced to abandon Spain, his initial force of over 300,000 had been reduced to considerably less than

half. Even recognition of the effectiveness of the English forces under Wellington does not reduce the over-all evaluation which must be placed upon the accomplishments of Spanish partisans.

During World War II, partisan resistance movements were widespread. They were known by various names such as the French *Maquis*, Italian Partisans, Belgian Underground, Russian Guerrillas, Philippine Guerrillas, the guerrilla forces of the Chinese National government and the Chinese communists, the aborted German Werewolf, and many others. Despite the differences in names and in the type of activities conducted, they were all partisan forces.

In France, prior to World War II, there were Frenchmen sympathetic to Nazi aims. When the Germans invaded France, they exploited these individuals and groups

usable assistance to the Allied Forces during the military operations in France, particularly during the establishment of the initial beachheads. In co-ordination with the landings, the partisan forces destroyed telephone and telegraph lines, demolished roads and bridges, attacked installations and depots, ambushed and attacked German units, and conducted many other activities of this general nature. The operation of the FFI did much to isolate the German defense units in the beachhead areas and to delay the movement of reserve units.

The activities of partisan forces in Belgium, Holland, and Denmark developed along different lines. The topography and density of population of these areas were not well suited to the development of guerrilla activities. The countries are small with comparatively large popula-

The factors which favored the widespread employment of partisan warfare during World War II still exist. In the future, it may be expected that such operations will again be developed extensively

by using them to conduct sabotage and to spread rumors and confusion. Such traitorous acts were highly valuable to the Germans in breaking French morale and developing a spirit of despair.

However, the strong feeling of French nationalism and hatred of the Germans held by most French people were not suppressed by German occupation and resulted in the development of several partisan groups. The largest of these was the *Maquis*, totalling approximately 300,000. All partisan groups were later united into the French Forces of the Interior (FFI), with a total strength of nearly a half million. The activities of the FFI were directed by SHAEF when it came into being, although some of the French communist forces also received direction from Moscow.

The activities of the FFI proved of val-

tions; and open resistance could have been easily isolated and eliminated. Thus, the activities of the partisan forces developed along the lines of passive resistance, typified by wastage of materials, imperfect workmanship, general slow-down movements, subtle forms of ridicule of the occupying forces, and scores of similar acts.

These clandestine partisan movements were all successful in reducing the German capacity and will to resist, and they provided a fruitful source of information to Allied Headquarters. Along with their French colleagues, partisans in the low countries played an effective role in the war of nerves, which is a part of psychological warfare. No action was decisive, but all actions served to harass the enemy.

Long before World War II, the German General Staff recognized that the Soviet

Union was placing guerrilla or partisan operations on an equal footing with regular tactical operations. Nevertheless, the Germans developed no effective counter-measures. Their occupation policies, particularly in the Ukraine, gave impetus to partisan activities rather than suppressed them. From the fragmentary reports of the campaign in Russia, we learn that German losses in personnel, weapons, and equipment at the hands of the Russian guerrillas were of critical importance.

Types of Operations

There are two broad categories of partisan operations, the open, overt, or guerrilla type; and the underground, covert, or clandestine type.

Let us first discuss the overt type. Forces of this nature are organized, trained, and equipped to operate along military lines. They usually develop in areas which are difficult of access, such as mountains, forests, and jungles which provide the extensive cover and concealment essential to guerrilla type operations. Since the partisans are normally natives of the area, they are familiar with all of the trails, hideouts, and short cuts. Their operations are offensive in nature, typified by numerous raids and ambushes conducted by small parties. All operations are characterized by surprise and mobility. The area for the operation is selected to gain surprise. Maximum fire power is suddenly directed upon the enemy; the partisans then vanish in the resulting confusion, before the enemy can bring his fire to bear upon them. Defensive action is avoided because the superiority of the enemy's armed forces and equipment may result in the destruction of the partisan forces.

Now we will turn to the underground or covert type. Partisan organizations of this category usually develop in cities, towns, and heavily populated areas. Their activities include passive resistance, sabotage, espionage, and general subver-

sion through the spreading of rumors, underground newspapers, and leaflets. The operations of these clandestine partisan forces are characterized by secrecy and stealth. If overt action is contemplated in heavily populated areas, it must be planned and co-ordinated with military operations in order that the partisan forces may be quickly relieved.

The result of the Polish uprising in Warsaw under General Bor is an excellent example of what usually happens if such co-ordination is not effected. In this instance, the Russian armies besieging Warsaw stood off deliberately until the defending Germans had completely annihilated General Bor's forces, thereby eliminating a strong partisan faction which would have subsequently been troublesome to the Soviet occupation of Poland. On the other hand, the partisan uprising in Paris in August 1944, which coincided with the arrival of the Allied forces, illustrates the measure of success possible with proper timing.

In a large country, which contains both built-up areas and inaccessible regions, the development of both types of partisan forces may be expected. In all probability, there will be no definite organizational or operational pattern. Partisan forces will vary according to the terrain, the character and density of the population, the supply of arms and equipment, the presence of strong and determined leaders, and the methods employed to counteract their operations. Consequently, an intensive study and analysis of all factors must be made either to develop and employ partisans, or to organize a defense against them.

Development of a Force

Let us now turn to the development of a partisan force. Normally, partisan forces develop through gradual stages of progression. The first stage is the effort, usually aided from without, to alienate the people from their existing or occupying

government. At first, such a movement involves individuals or small groups of determined men. Initial operations are simple acts of sabotage, pamphleteering, or minor forays of little real significance against the government. However, the fact that the partisans are able to conduct these acts bolsters their confidence and brings in additional followers to add strength to the movement.

As operations gain in scope and frequency, the spirit of resistance becomes more defiant. As the movement gains momentum, many persons who have been reluctant to join are converted to the cause and recruited for the resistance forces. Eventually a full-scale resistance movement is established. This can be considered the normal evolution of partisan forces in war. The span of organization will be in terms of years rather than days or months. In much of the world today, however, there exist militant political groups which are compactly organized during peace, and are thus capable of overnight conversion to wartime activities.

A highly important feature in the creation of any partisan force is the assistance rendered by outside agencies. In World War II, it was of vital concern to this nation and to our Allies to have effective partisan forces operating in territories occupied by the Axis. We supported partisan activities by supplying arms, ammunition, radio equipment, and many other items. We also provided personnel to train partisans in the use of such equipment and to assist them in organizing and developing their forces. The moral and the physical support rendered by the Allies was of tremendous importance. Without outside assistance, the time required to create such forces would have been increased many times over.

The demands of modern warfare being what they are, a nation must employ the bulk of its man power in producing and supplying weapons and equipment to the

fighting soldier. The net result is that a relatively small percentage of the total population is available for combat duty. Therefore, it is necessary to enlist the aid of allies, be they friendly powers or partisan forces.

In order to employ partisan forces so as to bring the maximum pressure to bear upon the enemy, it is essential to appreciate the capabilities and limitations of these forces. Conversely, to establish a defense against attack by unfriendly partisan forces, the commander must be able to determine the capabilities of the enemy's partisans in the same manner that he estimates the capabilities of the enemy's armed forces.

Although some of the activities conducted by partisan forces may be strategic in nature, others are primarily tactical. Paramilitary or guerrilla action is principally in the form of raids and ambushes. Guerrilla partisan forces operate in small bands employing hit-and-run tactics. By surprising the enemy, they are able to inflict heavy casualties with negligible losses to themselves. They force the enemy into adopting combat formations for administrative movements. The enemy is forced to employ combat troops to guard installations and lines of communications, thereby reducing his effective fighting strength at the front. The presence of partisans over a wide area makes it difficult for the enemy to move his reserves. Paramilitary partisan operations will always be most effective when co-ordinated with the military effort.

Sabotage

Sabotage derives its name from an old French practice of throwing wooden shoes (sabots) into machinery to slow down production. Sabotage is still defined as destruction of or injury to property to stop or slow down a nation's war effort, and it can be performed by any person who is not a lawful belligerent.

Some sabotage will be simple acts conducted by the untrained saboteur with ordinary tools, such as a knife to cut things, water or sugar to adulterate gasoline, or household matches to start fires. The potentiality of the use of these tools, coupled with imagination, is tremendous. Other acts of sabotage will be committed by trained saboteurs. The civilian occupations, military training, or skill in the use of specialized sabotage devices, explosives, and the like, qualifies specific saboteurs for attacks on targets such as power plants, bridges, or ships.

Sabotage targets may be classed under two headings: industrial targets, and military targets. Industrial targets include factories and industrial establishments, as well as the utilities and the transportation and communications systems which supply them; natural resources, such as mines and oil wells, and the smelters and refineries which process raw materials. Military targets include military installations, vehicles, aircraft, ships, weapons, roads, bridges, and communications.

Individuals or partisan groups will be able to attack all types of sabotage targets, but the effectiveness of the attacks will vary. The nature and location of the partisan forces will dictate the targets which might be sabotaged. Industries are normally located in the population centers; therefore, we can expect the covert type force to direct its main effort against them. The guerrilla forces will be able to sabotage certain industrial targets such as isolated plants, communications installations, transportation, and, possibly, natural resources. Military targets may be present in all areas.

For greatest effectiveness, sabotage is aimed at critical points or bottlenecks. An entire rail line may be disorganized for days by destruction of a large bridge or tunnel. The elimination of power supply will stop industries. Planning is important

in sabotage, and so is clear direction. Failure to designate targets may result in a dispersal of effort or in damage to communications or installations which are of negligible value to the enemy but of great future value to us. Therefore, all sabotage activities should be carefully planned and co-ordinated with the military effort.

Passive resistance is often led by members of clandestine partisan forces. In effect, these activities are another form of sabotage, although they are not necessarily acts of violence. For example, in industry, wastage of materials, improper workmanship, and slow-downs in work will greatly reduce the production of an industrial plant. Other acts of passive resistance are aimed at the morale of the enemy's armed forces and administrators. These acts include such matters as crossing the street to avoid a member of the enemy forces, leaving a restaurant or theater when one enters, the taunts of children, and other acts of non-co-operation. All are designed to irritate and aggravate the enemy and to develop in him a feeling of uneasiness. By itself, one of these acts is of little consequence; but when multiplied, they become highly effective.

A Source of Information

Partisan forces are a valuable source of information. They can collect both strategic and tactical information. The clandestine forces in the cities can provide information concerning the location of industrial establishments, items produced, rates of production, political information in respect to the local administration, methods used in control, and identity of leaders. Further, they can obtain sociological information, such as population figures, movement of groups, and data on mobilization of labor. These forces can also provide valuable military information concerning disposition, identity, strength, and composition of the



The French Forces of the Interior (FFI) numbered a half million partisans and gave valuable assistance to the Allies in the invasion of Europe. Above, French partisans and US soldiers near St. Tropez, August 1944. Below, FFI men guarding a German supply train wrecked by US tanks at Braine, September 1944.—US Army photos.



enemy's armed forces. Guerrillas are also a useful source of information. Much of the information from them will be military in nature.

In order that the collection effort of partisan forces be properly exploited, it is necessary to provide continued direction. Representatives or agents must contact these forces to establish communications for the receipt of missions and the transmission of information. There are several means which can be employed to conduct such communication. During World War II, the radio was the most common method, although couriers, aircraft, and vessels were employed.

Partisan forces can provide guides, hideouts, and contacts which are necessary in the development of escape and evasion routes. Here again, it is important that these activities be closely controlled and co-ordinated with military operations.

The broad objectives of a psychological warfare program are to lower the morale of the enemy and to raise the morale of individuals or groups who oppose the rule of the enemy. The existence of partisan forces assists in accomplishing both of these objectives. Such partisan activities as raids, ambushes, sabotage, and the spreading of false rumors; the publication of leaflets, stickers, and newspapers; radio broadcasts; and acts of passive resistance, help to lower the enemy's morale by creating fear, suspicion, distrust, and frustration. Conversely, the same acts provide encouragement and hope to the civilian population and generally bolster their morale. The more widespread and aggressive these activities become, the more effective are they as psychological implements.

Limitations and Problems

Definite limitations are placed on partisan activities. The guerrilla or para-military forces are not organized, trained, or equipped to employ formalized military

tactics. Even in their own field of harassing activity, they are not capable of sustained action, due primarily to logistical limitations. Guerrilla forces must operate primarily during hours of darkness. Since they will have no transport, ordinarily, targets must be within reasonable marching distance.

Guerrilla activity is very strenuous, and rest and recuperation time must be allowed to the personnel thus engaged. The physical isolation of guerrilla forces renders more difficult the control of their operations. This is particularly noticeable in the changing attitude of guerrillas following small or local successes.

Guerrilla forces are prone to overestimate their capabilities, and their leaders are likely to entertain delusions of grandeur. They may then undertake action beyond their capabilities. Security is a limitation within itself, when enemy counterespionage and countersabotage units are operating. Partisan forces must work slowly to preserve secrecy. This requirement increases the complexity of operation and the difficulties of control. Any relaxation of security by these forces will subject them to penetration by enemy counterintelligence, which will lead to a break-up of the organization.

There are many problems in connection with partisan forces, but from a theater headquarters viewpoint they may be all placed under the three headings of development, supply, and direction and control.

If the partisan movement develops spontaneously within a country, theater headquarters must develop plans and the means by which the partisan leaders are brought into contact. This is generally accomplished through radio communication, with facilities and a secure code furnished by theater headquarters. It may also be accomplished by arranging a meeting of qualified representatives of the theater commander with the partisan leaders,

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to work out mutual problems. An example was General Clark's clandestine meeting with the French authorities in North Africa in the early part of World War II. It is also feasible that some of the partisan leaders may be brought to meet with the theater commander's representatives. Such contact should be established as early as possible in order to facilitate the theater commander's function of direction.

As early as possible, preferably during time of peace, plans should be made for the rapid development of friendly partisan forces in areas where a need for them may arise. Included in these plans would be the selection and indoctrination of potential leaders, and the actual training of cadres. Such planning would be an intelligence function on the joint level.

Excellent examples of successful planning along these lines are the cases of Marshal Tito in Jugoslavia and Klement Gottwald in Czechoslovakia. These men were thoroughly and painstakingly trained in Moscow and sent into their respective countries fully prepared to bring them under Russian domination at the proper moment during the unstable period immediately following World War II. The overthrow tactics which were used in these two cases are contrary to United States policy, but they are cited to illustrate that the partisan weapon can be all the more effective if its use is planned for well in advance.

If the spirit of resistance has not developed within a country, or if resistance groups have not been formed, then the theater commander's problem is increased. Rigid control measures adopted by the enemy may have prevented the formation of partisan groups or, as in the case of the Ukrainians in the early part of the War, the people may have swayed toward the enemy. In such case, propaganda must be aimed at separating the people from the enemy and winning them over to the

friendly cause. Leaders will emerge and must be given the proper guidance and support to gain strength. To develop a partisan movement under such conditions will obviously require considerable time and effort.

In dealing with partisan forces, national and foreign policies must be considered. From a military viewpoint, it might be highly advantageous to arm a certain group of partisans. However, by doing so, we might be giving support to their political beliefs and thus offending other partisan groups or allies. The theater commander is rigidly guided by the Joint Chiefs of Staff in such matters, but there remain many decisions which he must make. Consequently, there are State Department representatives who act as advisers to the theater commander and his staff on the political aspects of such problems.

Problems of Supply

As far as possible, partisan forces live off the land and attack enemy depots and installations to gain additional weapons, food, and equipment. Under certain conditions, partisan forces will be completely unable to supply themselves locally, and it then becomes a tonnage problem for the theater commander. A figure of 18 pounds per man per day can be used for planning purposes. The theater commander must be prepared to allocate these supplies and deliver them to the partisans if he expects to make full use of their capabilities.

In the European Theater during 1944, the Americans air-dropped a monthly average of over 250 tons of supplies to the FFI. The July 1944 effort alone was over 1,000 tons. British operations in support of French partisans were even larger. Additional supplies were furnished to the Norwegians, Poles, Danes, Belgians, Dutch, Italians, Greeks, and others. Partisan forces will always be able to use more supplies than a theater is logically able or willing to provide. Therefore, the

supply procedure must be carefully worked out to ensure that priorities are established both as to the various partisan forces to be supplied and the items they are to receive. Arrangements must be made with the partisan forces to enable them to requisition supplies. It is advantageous to have a liaison officer with the partisans to assist them in ordering supplies and in selecting drop sites or landing beaches.

Delivery imposes special problems upon the theater commander. Although the amount of supply provided a partisan is relatively small, it is difficult to deliver supplies to him secretly. The most common method of the past War was by air-drop. Other methods included supply by submarine, by specially designed patrol craft, and by pack train through the enemy lines. Such delicate items as radios and sabotage devices require extremely careful packing. This is best accomplished by providing special packing stations within the theater. To air-drop the quantity of supplies needed by partisans will require the constant use of a large number of aircraft. The crews must be trained for dropping, particularly night-dropping in mass formation, and the aircraft may require special equipment or modification. The operations of supply aircraft may disclose to the enemy the location of major partisan groups. Consequently, drop zones must be changed frequently, and the flight of supply aircraft must be concealed by every possible means.

Direction and Control

Direction and control of partisans must be delicate, yet firm. Partisans are not members of the military establishment and are not subject to normal disciplinary measures. If they disagree with or dislike the orders they receive, they may disregard them. The leaders are apt to be strong, determined, and highly individualistic. Sometimes, these leaders adopt an attitude that they are fighting their

war and nobody is going to tell them how to do it. Normally, co-operation is excellent when proper direction and control are furnished. The staff officers planning and supervising partisan activities must have a thorough picture of the situation and an understanding of local problems. Liaison officers with the partisan forces will aid in settling differences but, as frequently as possible, theater representatives should confer with the partisan leaders to discuss mutual problems.

During the past War, there were several different methods used in co-ordinating and directing partisan activities. In certain theaters, G-2 supervised partisan intelligence activities and G-3 the operations. In other theaters, special staff sections were created. In one theater, co-ordination was accomplished through a catch-all general staff section, designated as G-5. The method employed is relatively unimportant, so long as the theater general staff divisions realize their responsibilities in regard to partisans and prepare the necessary plans and policies. For example, the J-2 may logically be charged with the initial development of the partisan force, including contacts with partisan leaders, and should be responsible for the direction of the intelligence effort at all times. However, the requirements for partisan forces and the direction of their overt operations are J-3 responsibilities.

Plans for partisans should be scheduled so that the partisan operational activities reach their highest tempo at a predetermined time in accordance with the theater operational plan. Usually, this peak is reached concurrently with the peak of tactical operations. However, there may be exceptions in such timing, since partisan activities can be used for feints and diversions.

It must be borne in mind constantly by a commander who employs partisans that

the security of his own plans can be jeopardized by defection within partisan ranks. It is a relatively simple matter for the enemy to plant agents among partisan forces, and for these agents to transmit information concerning missions and activities which would give indications of the friendly commander's plans.

Partisan operations should be centrally controlled from theater headquarters. Some tactical co-ordination may be accomplished by subordinate commanders, but it will be supervised by theater headquarters and in accordance with existing policies and directives. Liaison officers or control detachments are attached down to armies to assist commanders in obtaining needed partisan support. Theater headquarters must prepare and implement standing operating procedures to be used by the subordinate commanders in this connection.

Defense Against Partisans

Let us consider the defense against partisan activities. Both passive and active measures are employed. Passive defense measures consist of a strict interior guard system employing sentries around vital installations, and patrols along main routes of communication. These measures will normally provide adequate security against a local underground threat. In coordinating passive defense measures, a commander should take the following actions:

Establish an intelligence system that will provide information from which a continuous estimate of the situation can be made.

Select the vital areas and arteries of communications that require protection.

Assign major subordinate units to sectors to protect the vital areas and arteries of communications.

Centrally locate these units in their respective sectors; locate a mobile reserve to support unit sectors on short notice.

Establish a communications net using radio supplemented by wire.

Active defense measures, envisioning offensive action against partisan bases, may be applicable if the rear area extends to an unusual depth or if the theater includes jungles or mountains. These measures are employed against bands of partisans operating under centralized control from strong points, and in sufficient numbers to threaten the efficiency of rear area installations. The offensive may include organized drives against partisan centers, rapid pursuit of partisan bands, roundup of wanted men, and raids on suspected buildings and localities. The essential elements of these actions are surprise and encirclement. In addition, they require a high degree of alertness and mobility. If possible, all troops engaged in these operations should be motorized. Tanks will assist, but they have the disadvantage of alerting the partisans by noise, and are difficult to employ in rugged, isolated areas. Motorized infantry are the most effective troops, although armored cavalry is excellent for isolating selected areas.

In executing active defense, the commander should take the following actions:

Establish an intelligence system that will provide information from which a continuous estimate of the situation can be made.

Determine those areas or strong points from which partisans are operating.

Surround each area, cutting all avenues of approach.

Strike simultaneously, eliminating as many strong points as possible.

Maintain sufficient reserves to ensure success in all operations.

Establish a communications net adequate to control the operation, using radio supplemented by wire as the means of communications.

Defense measures against a partisan threat can be delegated to units along with other rear area security responsibili-

ties. Forces employed in a defense against partisans can organize a defense against an airborne or an armored threat. Similarly, a general reserve retained for counterattacks against an enemy airborne threat can launch a limited offensive against a partisan threat.

Conclusion

During World War I, there were few partisan groups. Yet in World War II, fought over much of the same ground, partisan groups were to be found in practically every enemy-occupied country. What caused this radical change? Probably the greatest factor, was psychological. For the first time in modern history, entire populations felt quickly and personally the impact of war. The opposing forces were no longer engaged along relatively stable lines. The airplane, tank, and other means of mechanization extended the combat zone over wide areas. There was not one front but several fronts, with combat zones extending to great depths. The broadening and deepening of the combat areas provided the space required for partisan operations. The long and extended supply lines and numerous installations, depots, and factories were particularly inviting to attack. The development of the airplane provided the means for supplying the partisan forces with arms, ammunition, and other equipment. The radio provided the means whereby outside forces could establish contact with the partisan forces and direct

their activities. The fact that World War II was a total war, whose dangers and privations were felt by everyone, gave natural rise to partisan activities.

In the period between the Wars, almost all of the Allied and Axis nations had recognized the value of this type of warfare and had developed doctrine and organization for its conduct. Without stimulus and support from outside sources, many of the partisan movements would never have developed.

The political foundations of the Allied and Axis causes were radically different. It was nearly impossible for inhabitants of an area or a country to take the middle road. They were either for or against the occupying power. Therefore, the Allies were able to prepare plans to exploit the friendly groups or to defend themselves against hostile groups.

The factors which favored the development of partisan warfare in World War II have not disappeared. As a matter of fact, they have become even more favorable.

Weapons, transportation, and communications have increased their ranges and, in all probability, the battlefield of the future will extend over continents instead of countries. The division of the world into separate blocs, with wide divergence in political beliefs, provides a fertile ground for the development of partisan warfare. Thus, we may expect, in the event of another war, that partisan warfare will be developed extensively.

United States Foreign Policy and the Armed Forces

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This is the first of two articles based on a chapter of Mr. Watson's forthcoming book entitled The Office of the Chief of Staff: Prewar Plans and Preparations, in the series, The U. S. Army in World War II. Copyright 1950 by Orlando Ward; permission for reproduction may be obtained on request from the Chief, Historical Division, Special Staff United States Army, Department of the Army, the Pentagon, Washington 25, D. C.—The Editor.

PART I

MILITARY power, which comes into being through advance planning and prolonged preparation, asserts influence in either of two ways. It can be employed actually, in war, or its assertion as a potential can be effective. The nation's mere possession of military power ready for exertion provides visible support for the nation's expression of views on foreign affairs, and that often is enough to make the expression persuasive.

Thus, a foreign policy which has a respectable basis in justice and morality is strengthened if it has also a respectable basis in physical force. To go one step further, a nation's diplomatic officials can assert a bold foreign policy with con-

fidence only when the nation possesses the military power sufficient to enforce that policy if need be: "Who wills the end must will the means."

It follows that if a nation does not have at hand the military power sufficient to support its declarations of a foreign policy, however defensible on grounds of justice and morality, it cannot be bold in asserting such a policy, or even confident in determining it.

This was the situation in which the United States found itself in the late 1930s, when there was a frequent desire to make a strong assertion of foreign policy but small ability, as measured by a military force-in-being, to do any such thing. Belated appropriations for betterment of the sea, ground, and air establishment, although larger than they had been in 1932, were still small as absolute sums and even smaller as related to the mounting expenditures by other powers. The equipment for which the appropriations were made would not, in General Malin Craig's words, "be fully transformed into military power for 2 years."

The fact that the nation's military potential could not be asserted for several years could have been little more apparent to American foreign-policy makers

The years preceding World War II saw the development of closer liaison between the Army, Navy, and State Department, and then a statement of foreign policy on which future plans could be based with assurance

than to their observant counterparts in other lands. It was weak in the very years when Germany and Japan were growing stronger and becoming more defiant of world opinion and international rights. The increase of these twin perils, attended by the noisy but less alarming Italian war spirit, was rapid. The threat of their ultimate breach of world peace, as well as of their ultimate impingement on American interests, was such as to stimulate in official Washington expressions of American opposition to military demonstrations by all three totalitarian powers.

As early as Japan's 1931 Manchurian venture, the State Department expressed disapproval of Japanese action but in that case the effect of a note unaccompanied by a show of arms or even a possibility of a show of arms was negligible, as Japan's subsequent aggression in China demonstrated. As the decade advanced and the threats of a fully militarized Japan and Germany became more frequent and more far-reaching, President Roosevelt repeatedly expressed the nation's hostility to dictatorship and militarism, most dramatically in his "quarantine speech" in Chicago on 5 October 1937.

From time to time, Secretary of State Cordell Hull gave evidence of his own concern not only over the foreign threats but over the doubtful ability of the United States to counter them effectively. As early as 22 January 1935, he had sent to the President a copy of a current Department memorandum on the Far East: "We should speed our efforts toward possessing a navy so strong that no other nation will think seriously of attacking us." He later heard that the President "expressed surprise that I should be 'plugging' for a bigger navy."

Mr. Hull's general concern was for the maintenance of the dignity and authority of the United States in the international concert. His particular and pressing con-

cern late in the decade was for the United States' position with regard to the Latin-American nations, protection of whom from European aggression had been regarded as an American responsibility from the days of President Monroe. Those southern nations had come to feel, with varying degrees of contentment, that they could count upon the United States' support against any European aggression; they would have to do so because their own individual powers of resistance were incapable of coping with large-scale attack.

Their hospitality to mass immigration had placed in some of these lands large colonies of Germans and Italians, among whom of late years there was a pronounced degree of Nazi and Fascist sentiment. Mussolini's and Hitler's successes brought from some of these emigrants expressions of approval and kinship, and these in turn were echoed appreciatively in Rome and Berlin. In the State Department and elsewhere, there were assertions that, given the opportunity and the support of arms and leadership, one or more of these transplanted colonies would in time start an Axis-inspired protest against an existing government of Latin-America (the pattern designed and executed in the Sudetenland in 1938); that it soon would find an occasion for local rebellion; and that it thus would provide in the American hemisphere a ready-made bridgehead for intervention and later full-scale invasion from Europe. This, it was reasoned, could lead to a military occupation which, once established, would be far more difficult to dislodge than to have prevented in the first place. Of the local Nazis' hopes and intentions, there were rumors sufficient to make American diplomatic agents uneasy and thereafter to arouse in the State Department anxiety over a military coup which might be close at hand, and against which there was in 1938 no implemented plan of protection.

Army Plans

The War Plans Division of the General Staff, like the corresponding division of the Navy, had reckoned with this possibility as with military possibilities in other sections of the globe, primarily with relation to the security of the United States and its interests, direct and indirect. This was routine. There were various plans to cope with possible enemies. But in the case of the undermanned and underequipped Army, these plans were far from realistic, and were little more than Staff studies. This was inescapable, in view of the weakness of forces which would be available on war's sudden arrival. Most of the plans defined ultimate offensives, but with awareness that they would require forces available only long after war should start.

This meant that comprehensive planning, which is the only planning of importance, had made far less headway in the Army than in the Navy. The latter had an impressive force-in-being—the US Fleet which was continuously at sea in some phase of operational training.

That the Army, in contrast, had at this period no means of employing expeditionary forces with promptness was apparent. The slow efforts to build up that strength, by 1938, were not firmly pointed in the direction of any particular antagonist or any particular theater, save for defensive operations in the Pacific and at the Panama Canal approaches. As a result of its current weakness in men and matériel, the Army itself was committed to a narrow conception of its potential. As late as 1937 and 1938, there were strong expressions of Staff adherence to a policy of "passive defense," in the first phase of any conflict, dictated by the inadequacy of men and matériel for a vigorous counteroffensive. It was enunciated in annual reports and in cautious instructions upon the mission of the air arm.

It was the boldness and aggressiveness

of Germany and Japan which eventually sufficed to reveal to Washington eyes a threat to such fundamental American policies as the Monroe Doctrine, free trade, the rights of small nations and, at last, to self-preservation. Professional planners of Army and Navy were concerned over Pacific threats, but it was, rather, a belief that continental security itself was threatened which stirred an interest in the preparation of a more dynamic defense, that is, a defense which would start far from the United States' frontiers and would afford protection to the entire hemisphere. Hemisphere defense by its nature called for a considerable increase in strength and also in spirit. As later described within the General Staff, the change was a radical one:

Under the policy of hemisphere defense, we have formulated for the Army a new mission that recognizes the importance of the initiative in war and visualizes an early need for more than passive defense. Under this policy, we have set our mission as the defense, not of our territory alone, but co-operation in the defense of the entire Western Hemisphere. This mission requires the provision of means with which we can deny the enemy bases from which he might launch military operations against us or any of the democratic nations of this hemisphere. This policy is designed to reduce to a minimum the likelihood of accepting war upon our own territory.

Secretary Hull's Initiative

But this change, however much it may have been desired by the General Staff planners, recognized by them as sound military policy, and anticipated in their long-range planning activities, was not established as a national policy through the direct assertion of the General Staff or the Army. If it was even advanced by the Army in argument to the point of persuading the President, the available record is barren of evidence to prove it.

An impulse of considerable potency was provided, rather, by the State Department. The occasion was the recent disclosure by American observers that Axis nations were offering the services of military training officers to certain South American nations, the implications of

which led the Department to arrange a conference with operating (rather than policy-making) representatives of War and Navy Departments for 10 January 1938. Interdepartmental conferences at this level had long been conducted as a matter of routine. At this meeting, there was agreement that there should be a re-examination of American policies with regard to aiding the Latin-American nations' military establishments, and in succeeding months, on 12 February and 12 March, the State Department presented its views on this subject more at length while making its own study of what the Fascist and Nazi agents were currently engaged in doing in Latin America.

These exchanges among the departmental representatives produced no clear definition of a possible policy, however. In order to obtain a directive which would produce such a policy, Secretary of State Cordell Hull in April addressed a formal letter to President Roosevelt proposing the creation of a standing committee made up of the second-ranking officers of State, War, and Navy Departments for continuous liaison. "The Committee would be charged with the study of co-ordination and liaison both at home and abroad of the three departments concerned, and of the Foreign Service and the two combatant services. Matters of national policy affecting the three departments would also be taken up and discussed by the Committee."

Mr. Hull's suggestion was "heartily" approved by the President and put into effect with one alteration, whereby the War and Navy Department members were not the civilian Assistant Secretaries but the Chief of Staff and the Chief of Naval Operations. This brought into liaison with the State Department men whose professional qualifications could provide maximum value.

Thus, early in 1938, was created the only formal mechanism then extant for

current co-ordination of the military, naval, and diplomatic arms of government. Although the record leaves small doubt that it came to pass through the initiative of Mr. Hull rather than the military and that the subject-matter of the discussion was chosen by Mr. Welles rather than his military colleagues and largely concerned with "good-neighbor" promotion, there is interest in a post-facto memorandum upon those interdepartmental relationships which the Standing Liaison Committee (SLC) was expected to improve. It states that, at some time prior to his becoming Chief of Staff, General George C. Marshall urged upon Admiral William D. Leahy the importance of

. . . having the State Department in on joint plans so that our foreign policy and military plans would be in step. He mentioned this to Admiral Leahy in connection with the *Rainbow Plan*. Admiral Leahy seemed to think it unnecessary. At a subsequent meeting he (General Marshall) again brought up the subject and very definitely stated that he could not go along with the past practice of not informing the State Department as to Army and Navy joint plans. . . . Since Admiral Stark and General Marshall have been respectively Chief of Naval Operations and Chief of Staff, a point has been made of acquainting Mr. Welles, Under Secretary of State, with war plans, and the three have taken plans and other matters of vital import to national defense to the President for his approval.

The memorandum suggests that at the outset the liaison was neither completely trustful nor completely effective. It did not gain appreciably in effectiveness. The record of meetings of the Committee indicates that the initiative came generally from the State Department, whose representative assumed the chairmanship. The meetings were irregular, about once a month. The principal anxiety at the outset was for the security of the Panama Canal, an abiding concern of Army and Navy which now were doubtless gratified to find the anxiety shared by the State Department. But the steps proposed for increasing the canal's security were not impressive.

In general, Under Secretary Welles' other suggestions were of procedures

which should build up swifter and surer interdepartmental liaison and lead to acceptable programs for the advancement of Pan-American relations. In the former category were suggestions for admission of foreign-service personnel to the war colleges; for a more effective interchange of information at home and abroad; for a more studied selection of attachés and mission chiefs in "unimportant" areas. In the other category of external relations were suggestions to the Army and Navy chiefs for closer relations with all Latin-American nations including those in which the military was dominant; for the tender of military missions at low cost to counter similar tenders from Germany and Italy and acceptance of Latin-American missions to the United States; for admission of Latin-American officers to the US Military and Naval Academies and air schools; for more frequent visits to South and Central American nations by the naval and air fleets. These were obviously not major considerations of foreign policy.

As the war quickened in Europe in mid-1940, the Liaison Committee broadened its discussions. Actually, however, it became less important, for two reasons. With the coming of Henry L. Stimson to the War Department, more and more leadership in foreign-policy discussion was asserted at the Secretarial level. Even before that, the increased activity of the Joint Board, which in July 1939 had been instructed to report direct to the President as Commander-in-Chief rather than to the Secretaries of War and Navy, had reduced the necessity for the Joint Board's chief members to conduct any discussion of military policy in the Liaison Committee. The Joint Board was now engaged in planning of its own, far surpassing in importance its previous planning.

Early in 1937, both Army and Navy chiefs had recognized the frailty of certain of their existing Basic War Plans,

particularly those dealing with possible developments in the Pacific where the increasingly aggressive policies of Japan compelled appraisal. On 17 March 1937, the Joint Board restudied the current draft of Joint Army and Navy Basic War Plan *Orange* of 1928, particularly its requirements for the US Fleet in the Pacific, in the light of recent events, and also its requirement of an Army expeditionary force which in 1937 was nonexistent.

On 16 November 1937, the Joint Board approved the recommendation of General Craig, then Chief of Staff, to rescind the obsolete *Orange* Plan and prepare a substitute. An early draft of a substitute by the Joint Planning Committee was set aside and on 19 January 1938 two distinguished authorities on Pacific matters, Major General Stanley D. Embick and Rear Admiral J. O. Richardson, were directed to make a further Pacific study. This led to a new *Orange* Plan accepted by the Joint Board on 21 February and approved by the Secretaries of War and Navy a week later. It was to implement this that the Navy proposed a 20 percent increase, which the President recommended to Congress and which in May 1938 was adopted.

The identical facts which at this time impelled Army and Navy to reexamine their joint planning also induced the Navy to look into its relations with the British Navy, whose responsibilities in parts of the Pacific Ocean were no less than those of the US Navy, and whose co-operation in a Pacific war was consistently envisaged in US Navy planning.

Neither in terms of the objectives which Secretary Hull's letter to the President had set forth, nor in terms of specific achievements immediately attributable to it, did any striking success attend the labors of the Liaison Committee. Its consultations, rather, provided information upon which the three department chiefs were able to act. Its written records as

kept in the Office of the Chief of Staff faded to an end in 1943 when a new secretary failed to make any more entries. It had not been at all the National Defense Council which its friends may have hoped it would become but, rather, a liaison aid for higher authority. It had met infrequently or not at all during many periods of crisis. It had no permanent secretariat to press its suggestions to accomplishment. It discussed little except Latin-American relations, whereas in late 1939 and 1940 the Joint Board was discussing the need for a fully developed national defense and the pressing need for greater co-ordination of foreign policy and military policy in other and more worrying areas.

On the other hand, it is not true that the Liaison Committee was a failure. One cannot justly point out that a disproportionate amount of the Committee's discussions in 1938 and 1939 dealt with Pan-American considerations without adding that often in that period both the Army and Navy planners were most uneasy over the prime need for Hemisphere defense, and admission of their anxiety was made to Congress.

In early 1939, the Army War College was called on for a secret study of the force needed to protect Brazil from Axis machinations. General Marshall, then Deputy to General Craig, explained to the War College Commandant the "urgent need of two such studies" (the other being on Venezuela) and impressed on him the secrecy as well as the urgency of the inquiry. Special quarters were accordingly set aside for the War College committee's labors, almost unknown to the War College save for this small committee's membership and little known even within the General Staff itself.

In 10 weeks, a report which won the thanks of General Craig was provided. It called for creation of a Hemisphere Defense Force of 112,000 men as soon as

possible, its concentration for training as a unit, the provision of special equipment for its projected Latin-American operations, the simultaneous acquisition of shipping sufficient to transport it as a unit. Anxiety about the security of Latin America, far from subsiding quickly, was increased the next year when the fall of France and the threat to Britain aroused fears that those nations' two fleets might be used by Germany for trans-Atlantic operations. The pressure to lend United States aid to South American nations was reduced eventually by realization that new military equipment was needed by them less urgently than by Britain, and by the United States' own forces.

It must be remembered that in 1939, and for some time afterward, there was at hand no reliable prophet who could say that our first defensive blows of the war would be struck, not in the vicinity of Panama but in the shipping routes of the North Atlantic, and that our commitment to war would be brought about not near the Canal nor in the Atlantic, nor even by Hitler and Mussolini, but in the mid-Pacific by the hand of Japan. The Committee discussions did indeed stress what proved to be the wrong peril and for that reason may seem to have diverted the attention of War and Navy Departments to some extent from the areas where time proved the threats to be more substantial, and from long-range planning activities which would have been more fruitful.

But those surmises are upset by the Joint Board records, shortly to be referred to, which show that the Army and Navy were not in fact diverted from the larger planning job. Even the attention paid to Hemisphere Defense was by no means wasted. It helped materially to provide an escape from the old idea of "national" defense and a basic change in concept from passive defense to a dynamic defense designed to go into action before the enemy

could launch his attack, and this was a vital change. In this respect, although not in all others, the first *Rainbow Plan*, which came into being in 1939, constituted an epochal advance over the old "color" plans.

The danger in Latin America was in fact a possibility in 1939, and it must have seemed a probability in the dark days of mid-1940 when France had fallen and Britain was in jeopardy. It is arguable that, had the peril of Latin America been ignored, one of the critical areas might have been there. As late as 24 May 1940, there was a warning from London that 6,000 Nazis in merchant ships were a possible means for the Nazis in Brazil to seize the government. It was to cope with such a coup and its possible sequels that the President on 25 May directed the Chief of Naval Operations to devise plans for the moving of 10,000 troops to Brazil by air to be followed by 100,000 to be transported by sea. In 2 more days, the Navy drafted the *Pot of Gold Plan* for that purpose, involving ultimate use of 4 battleships, 2 carriers, 9 cruisers and 3 squadrons of destroyers. A Joint Planning Committee memo of 8 July 1940 contemplated seizure of French Islands in the Caribbean, in the event of stated circumstances, and the Havana Conference of Foreign Ministers in July 1940 nervously set about a strengthening of the Americas by diplomatic means.

These events of mid-1940 suggest how substantial was the threat to Hemisphere security in the mind of the American high command. Even so, it is clear that the General Staff did not concentrate wholly on that peril. Rather, it did all its planning with a consciousness that, whatever the threats in Latin America, the sources of the threats were in Europe. Thus, much of what passed for Hemisphere Defense planning was in reality a planning for defense against the Axis. It was manifest in the Liaison Committee discussions and,

more fruitfully, in the preparation of programs for increasing land, sea, and air forces. It was manifest, too, in *Rainbow Plans No. 1, 4, and 5*, all of which assumed that certain Latin-American nations would be associated with the United States in such a war as those plans contemplated.

One other point is significant. Politically, in that day, it was wiser to ask Congress for support in defending the South American approaches to the Canal than in providing resistance to Hitler elsewhere; it was more visibly a "defensive" measure. Political values were not limited to those affecting American domestic affairs either. There were political considerations which affected relations with South American nations as well, and of them the State Department was naturally aware. At the end of 1938, the 21 members of the Eighth International Conference of American States at Lima, Peru, adopted a "Declaration of American Principles" and reaffirmed their "decision to maintain and defend them against all foreign intervention. . . ."

As late as the spring of 1941, the fusion of political and military concerns in that area was shown in a communication from General Marshall to the Secretary of War, proposing financial assistance to Paraguay. He wrote: "The State Department considers it politically desirable to assist Paraguay by financing improvements to its principal airfields. . . . Strategic considerations also make this desirable." Some of the Chief of Staff's advisors told him that the best air route, all considered, to reach Southern Brazil and Uruguay would be via the upper west coast route, crossing the middle Andes and Paraguay.

It would be difficult to find in Secretary Hull's original suggestion and its sequels more stimulation to Army and Navy activity than has been mentioned. Munich itself provided its own stimulants to action, leading to continuous study in

the planning sections of both services, spurred by their respective chiefs, by the President himself in his pressure for increased munitions, and by simple observation of Europe's rapid drift toward war. The work of the individual armed services led to and in turn was quickened by the discussions of their common problems in the Joint Army-Navy Board. For the first time in years, this mechanism for interservice co-ordination began functioning vigorously.

The Joint Board, which until creation of the Joint Chiefs of Staff in 1942 was the co-ordinating element for the Army and Navy, and hence of great potential influence in the making of foreign policy itself, had long suffered from the same causes which weakened the Army during the 1920s and 1930s. It was at best an imperfect instrument for decisive action because it was designed for consultation, not command. Its decisions were made unanimously or not at all, which meant that many were made not at all.

But the 1937 decision to rescind the old *Orange Plan* against Japan illustrates that, as a Pacific war became more threatening and Army's problem involved Navy's and vice versa, the anxieties of the Chief of Staff and the Chief of Naval Operations necessarily affected them in their joint relations as well as in their individual capacities. The discussions which each held with his own Staff assistants were carried over into their discussions in the Joint Board.

Munich's consequences increased the anxieties over possible involvement with the Axis. In November 1938, the Board instructed its Joint Planning Committee (the two services' planning chiefs and their first assistants) to "make exploratory studies and estimates as to the various practicable courses of action open to the military and naval forces of the United States in the event of (a) violation

of the Monroe Doctrine by one or more of the Fascist powers, and (b) a simultaneous attempt to expand Japanese influence in the Philippines." The studies were to assume that Germany, Italy, and Japan would be joined by alliance, and that non-Fascist European nations would remain neutral so long as their own colonies in the Western Hemisphere were unmolested.

The explorations by Army and Navy planners began promptly. By January 1939, Colonel (later Brigadier General) Frank S. Clark and others had completed a draft which, as stipulated by the instructions, recognized the alignment of America's eventual enemies, and likewise expressed doubt of active British support until British trade or territory should be affected. This early draft by Army members also denied, rather surprisingly, that loss of Guam or the Philippines involved anything which America now recognized officially as vital American interests.

But the draft recognized also that even though defense of the Western Pacific would prove impossible, there might be a public demand that it be attempted. The inability to defend both oceans simultaneously was stated, and—impressively enough when one considers the traditional emphasis on Pacific defenses—the Army's first draft recognized that the Nation's greater interest was in the Atlantic and Caribbean.

It is of interest to note in the approved study several bold harbingers of what would be firmly stated as a national policy a great deal later:

In the event of such a concerted aggression, there can be no doubt that the vital interests of the United States would require offensive measures in the Atlantic against Germany and Italy to preserve the vital security of the Caribbean and the Panama Canal. If this is done it will be necessary to assume a defensive attitude in the Eastern Pacific...

Active aggression by Germany and Italy would appear to be possible only if the United States naval forces are inextricably committed to operations in the Western Pacific...

If, following an initial Japanese aggression, the United States should remain in a strategic state of readiness, refraining from an advance into the Western Pacific, the fascist powers could not and would not undertake active aggression against South America...

If the United States, on the other hand, should decide to undertake offensive operations by a Western Pacific advance, she must take due cognizance at all times of the situation and its potentialities in the Western Atlantic in regard to German and Italian activities...

The planners' analysis in early 1939 of Japanese capabilities and possible intentions is of special interest by reason of certain prophetic remarks. The Committee believed that concerted action by Germany, Italy, and Japan would force the United States to defend the Western Hemisphere and thus make impossible an American offensive in the Pacific for a period; that Japan would seek domination of the Western Pacific, and the capture of the Philippines and Guam; that, to facilitate that program, Japan would attempt first to neutralize the US Fleet, and probably would attempt to "damage major fleet units without warning, or probably attempt to block the fleet in Pearl Harbor."

The draft shows the extent of Army agreement at that time with State Department fears for Latin America. An accompanying report from Major General George V. Strong of WPD reveals that on the issue of Pacific commitment the Army and Navy members of the Planning Committee parted company.

Army members... consider that an advance to the Western Pacific does not properly come within the scope of Hemisphere defense; that it would be an extremely costly undertaking (requiring army participation far beyond that envisaged by the Navy) and that the benefits to be derived therefrom are in no wise commensurate with the time, effort and cost involved.

General Strong urged that there be a policy decision by the President, particularly one which would determine the support which might be expected from other democracies. No presidential decision

was immediately forthcoming, but the need for mutual support between the United States and Great Britain would soon be urged by other voices. In May 1939, the British Admiralty sent a Planning Staff officer to Washington to discuss with US Navy Officers the disposition of the two fleets in the event of war and, according to British recollection, elicited from Admiral Leahy, then Chief of Naval Operations, "personal" views upon co-operation should the two nations be involved in war with Germany, Italy, and Japan. In sum, the Navy's professional chief was understood in that event to be contemplating US Naval control of the Pacific and a sharing of Allied control of the Atlantic and Mediterranean.

While the Joint Board's studies continued, there was in progress a related study of air force matters which necessarily impinged on the two-ocean defense issue. This air study had been preceded by a memorandum which the Assistant Secretary of War wrote on 14 October 1938 to the Chief of Staff, suggesting a reconsideration of airplane requirements. The issue shortly became engulfed in the Air Expansion Program demanded by the President, but by the end of winter the role of air power was so much in controversy within the Army that on 23 March 1939 General Craig, then Chief of Staff, named a board to study the ever-recurring problem.

For present purposes, references to this board will be only those touching on the major war policies then being considered by the Joint Planning Committee, but some remarks by Colonel J. W. Anderson of WPD are of profound interest in their prophetic character:

We should be prepared for prompt and limited operations requiring Army troops in the mid-Pacific, in the Caribbean, and in Central and South America. Some of these operations, unless they are to be undertaken at tremendous ultimate cost, must be planned in advance and executed with the ut-

most dispatch. They cannot await the perfection of our stone wall.

... there should be recognized the possibility of a requirement for the prompt dispatch of a small but representative force to Europe, notwithstanding the military undesirability of such action.

If early needs were met, Colonel Anderson continued, the need for large armies might be averted, and this raised the question of using aviation "in an active and aggressive defense involving operations beyond our own territory," which in turn raised the question of bases, and this, in turn, "the question of our policy of national defense." He found that all considerations called for "an active and aggressive defense" by both ground and air troops seeking to "(1) deepen our defensive zone around vital areas; (2) preclude enemy seizure of important strategic areas; (3) establish advanced operating bases for our Army and Navy."

These considerations apparently impressed General Marshall, for his suggested changes in the Air Board report (all of them accepted by Secretary Woodring) include an emphasis on the "wise strategic location of our Air Bases" as an accompaniment to "adequate radius of action of our airplanes" for the protection of America's vital installations. General Marshall's 1 September 1939 memorandum to the Secretary of War notes that "the report establishes for the first time a specific mission to the Air Corps, and provides for its organization upon functional lines. . ." A few days later, on 15 September, the Air Board's approved report was circulated through the Army by the Adjutant General. Like the Joint Board's Planning Committee report of 6 May 1939, and in pursuit of the air requirements stated in *Rainbow No. 1* (August 1939), it pointed the way to formulation and statement of a new military policy in a rapidly changing world.

In approximate synchronization with these policy studies by the Joint Board

and the temporary Air Board, and the continuing pressure for Navy expansion such as the bolder policy would call for, there was under way a new study of the Ground Forces' need for augmentation, a need which such a foreign policy unmistakably would emphasize. Instructions for the study had been given by General Craig as Chief of Staff to WPD in early November 1938, and on the last day of that month a report, several times revised, was ready to be given to the Assistant Secretary of War as an aid to him in arguing for heavier purchases of matériel. It noted the new programs for naval and air expansion and observed that these alone would not meet the nation's defense needs. In particular, it was noted that ground force augmentations were necessary in Panama, "keystone in the defense of the Western Hemisphere"; that there was danger of American involvement "in a major war that will require the dispatch of large expeditionary forces to South America or other areas" in order to seize and hold critical outposts.

On 10 December 1938, following a discussion at the White House which failed to supply a firm directive, Assistant Secretary Johnson reminded the Chief of Staff that during coming months the Army would probably have to defend an augmentation program "made necessary by the unsettled and critical conditions of world affairs (which) will, in all likelihood, cover a period of several years." With that prolonged need in mind, General Craig directed a new study of the Army's mission and its size requirements, entrusting it to a board made up from the Staff Divisions. Its report on 28 December inevitably called for increases in personnel which should make possible the early creation of infantry divisions existing then only on paper.

Shortly afterward, General Marshall (then Deputy Chief of Staff) and WPD

worked out a program for five trained, equipped divisions, and a start toward four others. Undiscouraged by the President's refusal to recommend personnel increases to the required extent, the Staff continued to regard this as the eventual first step in augmentation. In a statement for guidance of the Army, General Marshall said:

Dictator governments are arming heavily and penetrating economically and politically in Central and South America. Japan is establishing a "new order" in China and has been informed that we will have something to say about this "new order." These activities emphasize the possibility of this nation becoming involved in war in the Atlantic, in the Pacific, or in both these areas.

A Staff report went further with the suggestion of peril to Hemisphere defense:

Violation of the Monroe Doctrine by European powers is not beyond the realm of possibility. Such violation will probably not occur as a sudden, overt act but will take the form of a step-by-step development. Before military force replaces diplomatic negotiations, hostile nations may be firmly established in the Western Hemisphere in areas that threaten not only our national interest, but such vital areas as the Panama Canal as well.

To return to the affairs of the Joint Board, the preliminary study by Colonel Clark, lately mentioned, and summaries of certain long-considered views of the Navy's WPD with regard to war in both oceans, led in May 1939 to a rapid exchange of letters and memoranda among WPD, the Chief of Staff, the Navy's Planning Division, and the Chief of Naval Operations. These exchanges led, in turn, to the Joint Board's conclusion that the common Army-Navy policy which had been consistently recognized as a necessity, now had to be actively implemented. The Board therefore authorized its Joint Planning Committee to produce five basic war plans in line with certain military and political stipulations, which themselves assumed the existence of a policy not greatly differing from that suggested in the remarks of Colonels Clark and Anderson.

Joint Army-Navy War Plan No. 1 (better known as *Rainbow* No. 1) reached a fair stage of development on 27 July 1939, and on that day it was submitted to the Joint Board. There it was studied and somewhat revised, and thereafter—in line with the President's order of 5 July that the Joint Board make its reports direct to him as Commander-in-Chief—laid before Mr. Roosevelt, who gave it oral approval on 14 October 1939.

Unlike the earlier Joint War Plans, each contemplating war with one nation, the five new plans contemplated the probability of war against more than one foe and in more than one theater. It was for this reason that the Board abandoned the single-color nomenclature of Red, Blue, etc., and gave the new plans the appropriate code names of *Rainbow* 1, 2, 3, 4, and 5. They were in brief:

1. To prevent violation of the Monroe Doctrine, and to protect the United States, its possessions, and its sea-trade.
2. To do this, and also to sustain the authority of democratic powers in the Pacific zones.
3. To secure control of the Western Pacific.
4. To afford Hemisphere Defense, through sending US task forces if needed to South America, and to the Eastern Atlantic.
5. To achieve the purposes of 1., and 4., also to provide ultimately for sending forces to Africa or Europe in order to effect the decisive defeat of Germany or Italy or both. It assumed US co-operation with Great Britain and France.

The first four plans were eventually set aside. Nos. 2 and 3 (never fully developed in detailed planning) were formally cancelled by the Joint Board on 6 August 1941, by which time the recognition of Germany as the principal foe made this cancellation obligatory. Although formal cancellation of Ncs. 1 and 4 did not take place until 4 May 1942, much that they contemplated, such as the taking over of British bases (by the old-destroyer transfer of 3 September 1940) and the progressive use of Atlantic sea patrols, was in effect long before Pearl Harbor. *Rainbow* 1 and 4 were rendered obsolete

by the fact that their major premise was not fulfilled—that is, Britain's naval power was not neutralized, and hence America's problem of Hemisphere Defense was not thus magnified. Contemporaneously with the American-British Staff Conversations ("A.B.C.") of early 1941, *Rainbow* No. 5 was expanded into War Department Operation Plan *Rainbow* No. 5 and War Department Concentration Plan *Rainbow* No. 5 (and corresponding programs of Naval responsibility). This

grand composite was the basic plan in readiness when war actually came in December 1941, the program having been continuously restudied and amplified in the light of co-ordination with British plans. By that time, it specified the exact activities contemplated for protecting coasts and bases and for offensive operations overseas, but it had been modified little in fundamental concept since its drafting.

The dominant objective of our foreign policy is to create peaceful and stable conditions throughout the world, so that men may lead happier and more fruitful lives. This objective cannot, however, be achieved if the economic efforts of free men are overshadowed by the fear of aggression.

President Harry S. Truman

Our defense needs must be realistically related to existing global conditions and to the array of forces most likely to be pitted against us.

Secretary of Defense Louis Johnson

Let's Speed Up the Flow in the Pipeline

Lieutenant Colonel Page H. Slaughter, *Transportation Corps*
Instructor, Command and General Staff College

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The views expressed in this article are the author's and not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

FOR the last 2 years, I have been subjected to, and even participated in, an endless series of stimulating discussions of our Army's increasing need for more and more transportation, equipment, supplies, and service troops in any future war. Coincident with this need is a greater percentage of combat troops in relation to service troops.

It would appear that if we are to have more equipment—equipment that will be more complicated—we will need more men to move, store, distribute, and maintain it. We will need more supplies to support these additional men and more transportation to move the additional supplies. If we are to disperse our supplies and equipment to protect them from atomic destruction, we will need larger stocks of items—and, again, more men. The more men we have handling and moving supplies, the fewer we have fighting.

These discussions usually end up with the tacticians convinced that the logisticians already have too many troops, and

with the logisticians just as convinced that they need still more. On the basis of our past methods of operation, I feel that both convictions are correct. On the face of it, our discussion has reached a stalemate. We can discuss or argue until the small hours, but no one seems to come up with a good compromise solution. Those in the armored arm have long had the problem of the relative advantages of increased speed of vehicles versus weight and armor, and they have reached a compromise. It seems to me that the tactician and the logistian can also get together and come up with a solution.

Some Planning Figures

For a moment, let us look at some of our planning figures. In 1945, we had an infantry division of 14,037 men, with 1,432 vehicles. Today the infantry division has 18,803 men and 2,585 vehicles. True, we have added a tank battalion and some organic antiaircraft artillery, but we still are fighting three infantry regiments, and the strength of an infantry squad has been reduced from 12 to 9 men.

Most of these extra people are service support and combat support personnel, some of which were normally attached to divisions in the last War. However, simi-

If the tactician helps by practicing supply economy, the logistian can reduce the quantities of supplies and numbers of service troops in the theater by speeding up the flow of supplies in the pipeline

lar corps and army support personnel have not been correspondingly reduced. It takes additional service troops to supply, maintain, and service those additional men (about 4,700) and vehicles (about 1,100). It also takes additional supplies to take care of those additional service troops, as well as additional service troops to handle the additional supplies—and so on *ad infinitum*.

The theater division slice figure we have been using in Field Manual 101-10 is 40,000 men; there are presently suggestions to increase this figure to 43,000 or 45,000. With our present figure, 43 percent of the troops in the division slice are service troops. To what percentage will this figure grow if we keep on increasing the tonnages of supplies and equipment that must be handled? Your guess is as good as mine—it may be 50 percent or 75 percent.

I do not have any information on what the Russian division slice figure might be. I have heard it said, however, that a German general who executed a fine maneuver to cut the Russian lines of communication during the last War found that the Reds did not have any. There was just a bunch of Red soldiers moving up, each with a full sack on his shoulders. There must be a happy medium between that type of operation and ours.

Let us look for a moment at the tonnages we handled and used in Europe in World War II. From D-day to VE-day we discharged, on the Continent, an average of 74.1 pounds per man per day, a total of 16,177,872 long tons being discharged (and rehandled) on the Continent during that 11-month period. During May 1945, we discharged at Continental ports 184,000 long tons *more than we were able to move from the ports*, and moved into depots 207,895 long tons *more of classes I and V alone than we issued from depots*. In June 1945, we were still moving 160,000

tons a day to meet troop requirements of 20,000 tons per day—and there were 1,250,000 tons of ammunition on the Continent and 1,000,000 tons of miscellaneous supplies still in England.

Consumption figures for this entire period are most difficult to find, and due to the various types of action at different times, possibly such figures would not accurately reflect our actual needs. However, taking the 2 months from 24 February to 25 April, 1945—the period of the crossing of the Roer River, the buildup for and crossing of the Rhine, and the advance to the Elbe—the figures should reflect our consumption needs at the time of our most extensive movement and effort. During that time, our consumption figures for the troops of the five field armies comprising the 12th and 6th Army Groups were as follows:

Class I ____ 7.6 pounds per man per day.

Classes II

and IV - 7.7 pounds per man per day.

Class III - 13.4 pounds per man per day.

Class V ... 10.4 pounds per man per day.

Total .. 39.1

Statistics alone certainly cannot be taken without question as proof that we moved a great deal more than we had to. Nor will the figures tell us exactly the minimum we could have moved to accomplish our mission. From the layman's viewpoint, however, the statistics certainly do point to the conclusion that something was wrong when we moved 74 pounds per man per day to meet a probably maximum requirement of 39 pounds per man per day. At least, we must admit that the logicians in the last War hauled, stocked, distributed, and serviced vast quantities of supplies and equipment that were not actually needed or used.

With the greater amount of more complicated equipment in any future war, our actual requirements in tonnages and items will be greater; and we certainly cannot

afford to also handle an increased "pad" of cargo that is not actually used. Some of our planners estimate that the use of jet aircraft, in lieu of conventional types, will increase our future requirements in aviation fuel alone to three times those of the last War.

Two Basic Handling Problems

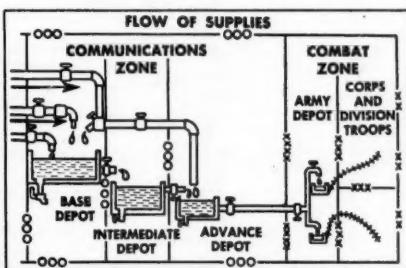
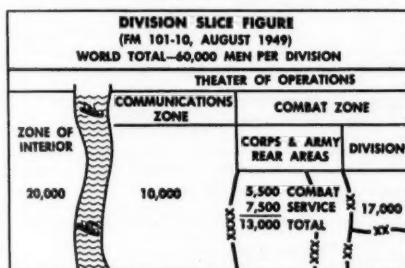
In supply, we have two very basic handling problems: the number of items, and the amount of tonnage.

If the tactician and the logistician are going to get their heads together to reach a compromise, what can we expect them to sacrifice? Take the tactician first. If he will reduce the number of items he thinks he has to have in the theater to win his

ends, which are not regularly supplied when in combat. Do we actually need the vast variety of similar items of clothing, equipment, vehicles, armament, to accomplish our purpose?

It seems to me we can well study the situation carefully and make reasonable reductions in the number of items we think we need without sacrificing morale, combat efficiency, or our ability to slug the enemy to a halt. Can't we "live off the land" in some part at least? Standardization and reduction of the number of items immediately reduces the original tonnage and the replacement and repair items and spare parts required, as well as the number of men needed to handle them.

The tactician, too, can become more effi-



campaign, we will have made great strides in the solution of the problem.

Admitted that we like to fight a comfortable, gentlemanly war, could not we still do without some of the creature comforts we carry along with us? Must we really have mobile bakery companies to supply fresh bread at the rate of one-half pound per man per day? Mobile clothing exchange and bath companies; mobile sales companies?

True, some of these services may be necessary. But must we be able to move them on their own equipment? Couldn't we use, or improvise, facilities already in the theater in many cases? They say that Russian soldiers are pleasantly surprised when they are provided field kitch-

cient in the use of the items he has. Greater emphasis and training on care and maintenance—supply economy—will obviously reduce the number of service personnel required to handle, repair, or salvage equipment, and the tonnage of repair and replacement items we must bring to the theater. Let us say that the tactician will be doing his part if he reduces his requirements and takes better care of what he has.

Speeding up the Flow

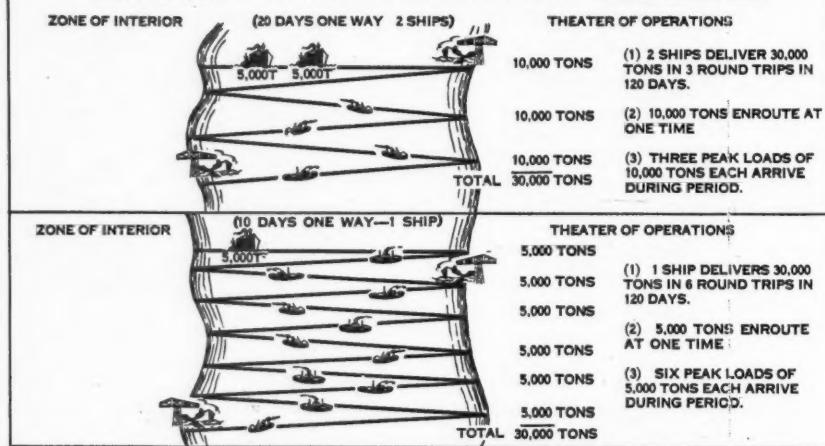
With the help of the tactician, we can reduce the amount of supplies we are forced to handle, but the reduction will admittedly be a relatively small percentage of the goal that must be achieved. It

appears, then, that it is up to the logistician to reduce the amount he handles to meet this tactician's irreducible minimum, if he is to make any significant contribution.

Still giving the combat soldier what he actually needs, I think we can do something within the framework of logistical operations to alleviate the situation. That "something" is to speed up the flow in the pipeline. In essence, we fill our supply pipeline from beginning to end before we get a flow from the far end; the slower our flow, the more supplies are required

Admitting that such a system is far in the foggy future, the onus is on the technical service supply people and the transportation people to do something now to more nearly approach such a system. Obviously, bulk handling of supplies required in bulk in an even flow is more economical than a "mail order" type of handling, but we could further investigate the practicability of this retail business for a large number of items. For example, consider radar tubes as compared with ammunition. I am not attempting to propose solutions to these complex problems.

THEORETICAL ADVANTAGES OF A SPEED-UP IN OCEAN SHIPPING



to keep it filled, and the more men we need to handle and move these supplies.

Ideally, what we need is a retail system whereby the front-line consumer picks up his Buck Rodgers-type radiophone and calls the warehouse in Chicago: "I need 50 overcoats for my family, and I need them right away!" "Yes, SIR," says the Chicago warehouseman, "We'll get them off on the afternoon rocket." And he does get them off. The front-line family is wearing the overcoats by breakfast the next morning.

But I do hope that the following discussion may stimulate some readers who are more expert to give some further thought which may result in a speed-up and consequent economy of handling in the theater.

Why Move So Much?

Why did our logisticians in World War II find it necessary to move about twice as much tonnage as was consumed? One answer seems to be that supplies were too long enroute, and too long in reserve in case the transportation broke down. Too

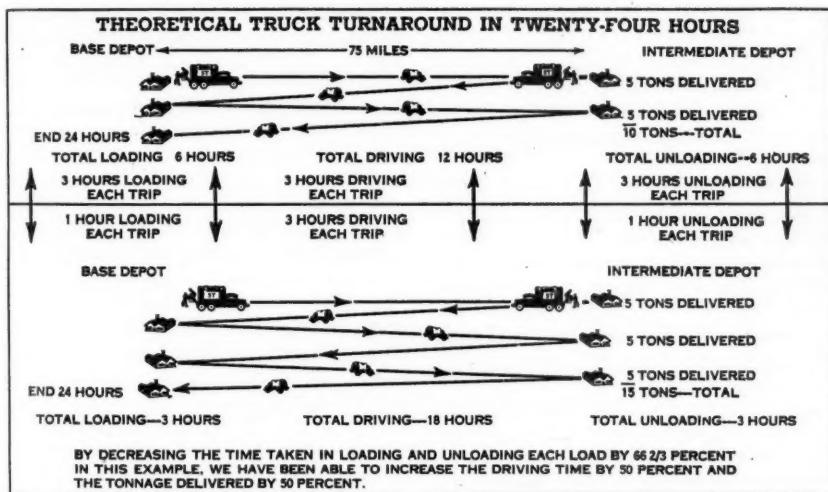
much tonnage was in transit, in storage, and in distribution. The defense seems to be that administrative difficulties, unforeseen demands, changes in the tactical situation, amount of supplies in the pipeline, and a safety factor padding induce the shipping of more than is actually needed by the combat soldier.

Certainly no one would advocate operating on a shoestring or trying to accomplish the impossible goal of shipping only exactly what is needed each day or month. We must have a small, reasonable safety factor to meet unforeseen demands and

can meet them more efficiently another time by realizing that our resources are limited, by better training of our logistical personnel and units, by using more advanced methods, and by better advance planning. Realizing that there are innumerable factors to the problem of reducing our tonnage and service troop requirements in the theater, I am limiting my discussion to one—speeding up the flow of supplies.

How to Accomplish a Speed-Up

The logistician can accomplish a speed-



losses. We must be able to give the combat soldier what he needs and when and where he needs it, even if our lines of communications do get temporary setbacks. It seems to me that we can still do just that, and still reduce the tonnages and items and service troops in the theater, by speeding up the flow in the pipeline.

I am not suggesting that our logisticians did not meet, with success, the millions of problems of logistical support on an unprecedented scale in the last War. I am merely suggesting that the experts

up in the pipeline by three principal efforts. First, by simplifying and speeding up communications and requisitioning procedures; second, by restudying and simplifying the distribution system; and third, by speeding up transportation. Although this solution can be stated in one sentence, I am not under the illusion that these are easy things to accomplish. Certainly, expert brains are continually working on these problems, and I am sure that constant progress is being made. Let us look for a moment, then, to some of the

difficulties these expert minds must be considering.

Requisitioning

Administrative difficulties account for the fact that a theater cannot requisition supplies from the Zone of Interior on an essentially retail, rather than a wholesale, basis. Generally speaking, we requisition once a month and ask for enough of what we want to last us the 30 days until we send in another monthly requisition. The "order and shipping time" from the forwarding of the requisition to receipt of supplies is such that we have to order for delivery 90 to 120 days in the future.

What if something happens to that shipment enroute to the consumer? We must have some safety level in the theater to take care of the customer until the loss can be replaced. But do we need a 60-day safety level? Our supply agencies in the theater load and unload, transfer, ship and tranship, store, and distribute about 90 days of supply of something to initially supply and support our troops for 30 days. If we could make our theater requisitions every 10 days instead of 30, we would have less supplies in each shipment; our shipments would arrive more often; our safety factor might be 20 days instead of 60; and we would handle only 30 days of supplies instead of 90. Once the theater requisition arrives in the Zone of Interior, we allow 10 days for processing and dispatching in the oversea supply division at the port, and 45 days for processing at the supply depot and shipment to the port. Sears, Roebuck and Co. receives daily 250,000 individual mail orders, averaging 3½ items per order, and assembles, checks, packs, accounts for, and ships over 1,000,000 articles—every one on its way within 24 hours after receipt of the order. If we were only one-tenth as fast with our paper work as Sears, Roebuck and Co., we would require 10 days instead of about 40 to start our supplies moving. In actual

practice, of course, the Army problem is different in many details and not that simple, but it gives us something to think about.

Storage and Distribution

When we have convinced the tactician that he can reduce his requirements and take better care of what he has, and the logistician that he can improve and speed up his business methods, we will have solved some of the problems facing us.

Our next problem is how to move supplies to their destination faster. Faster transportation alone is not the answer. The biggest saving can be made in reducing the time that the supplies are not moving at all. Disregarding any handling from manufacturer to Zone of Interior depot, we moved supplies in World War II from depot to port, transferred to ship, moved to overseas port, transferred to land transport, moved to base depot, transferred (sometimes moved to intermediate depot, transferred), moved to advance depot, transferred, moved to army depot, transferred, moved to army supply point, transferred, and finally moved to unit distribution point and the troops. Many of these transfers involved not only the process of shifting from one means of transportation to another but also storage (which is lost time), unloading, segregating, stock accounting, assembling, documenting, and loading out.

What we need is a distribution system that requires less handling enroute. We need to reduce not only the number of tons handled but also the number of times each ton is handled. Air transport is, of course, one of the answers. I see no reason why we should not plan to make routine use of this means for many items, particularly those of high unit value and small bulk. Agreed that we must transfer from land to water to land transportation for our bulk supplies, must we then make three or four additional handlings and transfers before we deliver to the consumer? Can

we not figure out some system whereby the normally consumed amounts of supplies are shipped in an even flow to the theater and delivered more directly from port to consumer in the theater?

Establishing such a system would present many complicated problems and involve a calculated risk, but it is certainly worth thinking about. In the event of unexpected losses or demands, high speed emergency action could bring the items required by means of high speed "premium" transportation. With such a system, we could do more of our warehousing and paper work in the Zone of Interior, where we should have people available, living in their homes, to do the work, and would not have to support these workers by shipping quantities of food, clothing, laundries, and houses for them to the theater. If we reduce the time our supplies are being warehoused and handled, and the number of items and tons needed to keep the pipeline full, we will reduce our service troop requirements accordingly.

Transportation

To attempt to set up a system of supply from the Zone of Interior with an absolute minimum of handling in the theater, we must have fast, reliable, routine transportation, and an even faster, more reliable system of emergency transportation. If the logistician could convince himself, as well as the tactician, that he could expect on-time deliveries of supplies where needed, he would not be interested in the large safety pad and extra supplies and extra handlings presently required to insure uninterrupted flow to users. To speed up our transportation produces economies in more ways than one. First of all, we need fewer transportation units—ships, trucks, planes, railway cars—if they move faster. Generally speaking, if these units move twice as fast, we need half as many units to move essentially the same tonnage. Secondly, if the units

move twice as fast, we will need only half as many supplies in transit at any one time to keep the pipeline full.

Doubling the speed of transportation units while actually moving is undoubtedly impossible. But there is also the problem of the amount of time the units are not moving at all. Transportation is movement. It is a commodity that cannot be stored for a rainy day. What is not used immediately is lost forever. A truck company idle for a day means 30,000 ton-miles worth of transportation wasted. We can contribute most to a speed-up of transportation by reducing to a minimum the length of time our transportation units stand idle. When we can load and unload faster, our units make more trips in the same length of time. Even doubling the number of trips, in many cases, is a possibility not beyond reason.

One thought on the feasibility of increasing speed while actually moving is in ocean shipping. Will we be able to operate slow moving ships in large convoys in the face of an atomic bomb threat? It may be essential to develop fast cargo ships that can operate singly at speeds great enough to evade submarines. In doing this for self-protection, we are also accomplishing economies in transportation.

Supplies in transit—in the pipeline—are not used in the final analysis. We pump them in at one end, and we draw them out at the other. But when we are through, we have the amount in the pipeline left over. If we cut the amount in transit in half, have we not accomplished a considerable economy? Consideration of the speed of movement plays an important part in determining where we keep the bulk of our supplies and where we keep our safety "pad" in the event our routine shipping breaks down for any reason. With fast, premium, emergency transportation available and planned for, why can't we keep a large portion of our "pad" at home and ship the supplies to arrive

in the theater in plenty of time if and when needed? Our primary concern is to deliver supplies to the consumer when he needs them. Where these supplies are stored is unimportant if we make deliveries on time. With increased speed of delivery we can keep the bulk of our supplies at much greater distances from the combat zone and still deliver in the same length of time we now require.

What Can Be Accomplished?

In summary, speeding up the pipeline flow will produce benefits as follows:

1. Reduce requirements for stockage of supplies in the theater.
2. Reduce requirements for service troops in the theater.

3. Reduce requirements for transportation units—trucks, ships, planes, railway cars.

4. Reduce requirements for personnel to operate transportation units.

5. Reduce requirements for supplies in transit.

6. Reduce requirements for troops to handle supplies in transit.

7. Increase available combat man power.

8. Produce economies in use of national resources, both material and man power.

Anyone who produces a solution to a small portion of the problem of speeding up the supply of the combat forces will contribute heavily to the effectiveness of any future operation.

Victory is the beautiful, bright-colored flower. Transport is the stem without which it could never have blossomed. Yet even the military student, in his zeal to master the fascinating combinations of the actual conflict, often forgets the far more intricate complications of supply.

Winston S. Churchill

The Commander and His G-2

Colonel T. F. Van Natta, *Cavalry*
Instructor, Command and General Staff College

KM

THROUGHOUT our Army educational system, there is a great deal being taught about the techniques of intelligence. Specialists are being trained in the many details, officers are being trained in the direction and general operation of intelligence, and every officer, at some time or other, is given at least a familiarization course on the subject. This instruction is generally good, its subject matter sound; it is essential that it be kept up if we are to have any military intelligence worthy of the name. But this isn't enough.

Also, throughout the Army, both in class and in maneuvers, our officers are being trained to use intelligence. There is not quite as much training in this use as there is in the production of intelligence, but results are satisfactory, for certainly all officers soon learn to consider terrain, weather, and enemy. But this still isn't enough.

There is practically no training, except of a very general nature, in how commanders should use their intelligence officers (or their intelligence organizations).

But why should commanders have to be trained in the specific use of the G-2? What difference is there between a G-2 and a G-3, or a G-4, or any other staff officer?

The answer to the second question is "none"; there is no difference between a G-2 and the rest of the staff.

But the answer to the first question is that commanders too often don't know how to handle their G-2s so as to get the best results. Sometimes this is due to a misconception of responsibility, the attitude that "intelligence is something that will be furnished" instead of the knowledge that intelligence is something we all have to go out and get. Sometimes it is due to a lack of knowledge; some commanders don't know good from bad intelligence work, don't know what they can or can't get from their G-2s. Sometimes, finally, it is due to lack of interest—the commander just doesn't care.

There is no magic formula for perfect intelligence. It is based on lots of hard work, and it won't attain any greater degree of perfection than any other human endeavor. However, if commanders will keep in mind the following three points, their intelligence systems should produce much better results.

First point: They are YOUR intelligence people, and it is YOUR responsibility (not theirs) to produce good intelligence.

To get best results, commanders should remember that intelligence is their own responsibility; that only capabilities, not intentions, can be determined; and that good intelligence depends on good personnel

Several times high wartime commanders, in talks to large groups of officers, have said, "In my command, intelligence failed." This statement was not made as self accusation, but rather as self justification.

Would any commander attempt to excuse a failure by saying that supply within his command, or planning within his command, or medical service within his command, failed? Hardly. Yet this attitude that intelligence is something apart is not uncommon. As long as it persists, however, as long as any of us feel so little responsibility for our intelligence organization that we can shift blame to it from our own shoulders, then inevitably our intelligence organization will fail.

"The eye of the master fattens the horse" is the Spanish form of a proverb that exists in all languages. The commander, to get good intelligence, must devote the same attention to it and accept the same responsibility for it as he does for all of his other units.

They are YOUR intelligence people, and it is YOUR job to make them deliver.

Second point: Do you believe in sorcery?

Of course you don't, or at least you will stoutly maintain you don't in the presence of witnesses. But if you say you don't, will you always act as if you don't?

Any commander, queried in public or in private as to his opinions on the matter, will almost invariably inveigh against any intelligence system or procedure that attempts to determine enemy intentions. Nearly all commanders feel, so they say, that intelligence reporting should be limited to enemy capabilities, or some other similar, factual, answer.

But how many really hold to this? Unfortunately very few.

Quite a few division and corps G-2s have been queried on this matter. All, without exception, have answered substantially: "Yes, the old man let me put capabilities in the written estimates, but he always asked me, 'What's the enemy

going to do?', and insisted on an answer." Further, some of the corps G-2s who were queried said that they never knew of a division G-2 who stuck to capabilities who wasn't relieved. Of course, probably the greatest source of relief was for attempting to guess what the enemy was going to do, and missing. But it is noteworthy that a division G-2 who stuck to capabilities didn't last long.

A G-2 cannot tell his commander what the enemy is going to do. Probably no one can tell our commanders what the enemy is going to do, not even the enemy commander himself, as he may not have made up his own mind yet.

One of the features of the course at the Command and General Staff College is to have our more noted commanders of World War II describe how and what they did in certain major operations. A noticeable point in all these talks is that almost always our commanders started an action with only a general plan in mind, intending to develop and adjust the plan as they went along. In other words, they didn't know, in detail, what they were going to do themselves. It would have taken a high degree of black magic for a hostile G-2 to tell his commander "what the enemy is going to do."

Again, if a visitor at a command post asked the G-3, "What is your commander going to do?", nine times out of ten the answer is, "You'd better get it from the old man himself." Even this officer, who presumably knows more of the commander's tactical mind than anyone else, doesn't care to commit himself on what his own commander "is going to do."

So, if we believe in the "capabilities" idea, let's use it. And in using it, remember always that capabilities should reflect the maximum damage that the enemy can do to us. Not the minimum, not the median, but all of those harmful actions of which the enemy is capable.

This is the maximum.

And any time a commander demands less than this maximum from his G-2, he is, in effect, asking, "What is the enemy going to do?"

Let us examine an illustration from the last War. An American infantry division, in a long offensive, took part in several large-scale attacks. In his estimate prior to each of these attacks, the G-2, quite properly, included the enemy capability of making a serious counter-attack with his general reserve into the division's area. Five of these attacks were made by the division, and the enemy either withdrew without counterattack or made it elsewhere. The G-2, severely criticized for his "wrong guesses," stopped reporting this capability. In its seventh attack, the division apparently hit the enemy in a sensitive spot, for the whole general reserve was thrown against the division, and it took a severe mauling. This time the G-2 deserved the criticism he received, but the commander also deserved the poor service he got.

There is no intent here to criticize the not uncommon practice of driving people beyond what they think they can do. A commander is of little value unless he can occasionally deliver the impossible. The G-2 should receive no more consideration than any other member of the command, and he should be driven just as hard to outdo himself. But don't try to drive him into telling "what the enemy is going to do." He will certainly try, and he may be lucky a few times, but he can't keep it up. No human can.

Third Point: You get what you pay for.

This is not a recommendation to put the best men into intelligence. Situations will vary, and while intelligence may be important at one time, it may be the least of a commander's worries at another. Put the best men where they are most needed.

There are two types of currency a commander can use to buy results; men and

materials are one, and his own personal attention is the other. Both of these currencies are limited; there are only so many good officers, and there are only 24 hours in a day. The commander himself must decide where to spend his currencies so as to obtain the best results. If he chooses to neglect his intelligence organization and to fill it with third-team people, he cannot be criticized as long as he knows what he is doing and knows what results to expect.

Too often, however, commanders refuse to pay for a first-class job and then are surprised because they don't get one.

In fact, many have neglected to make the essential down payment, which is to learn enough about intelligence to know whether or not they are getting good service.

Particularly must a commander know and understand security. He must know enough to keep his G-2 from using it to cover up shortcomings, and he must also know enough to avoid senselessly exposing the more sensitive sources of information. The commander must always remember that security and operational freedom are usually directly opposed to each other.

The measures the G-2 will recommend to preserve security will almost invariably hamper the operation of the command. But it is the commander, not the G-2, who must decide which measures to adopt. Will the commander let the enemy learn of a move in order to gain speed and co-ordination, or will he slow up his operations and reduce his control in order to surprise the enemy? Only the commander decides this, and if he fails to appreciate the full significance of the recommended security measures, he has only himself to blame.

These are the three important points for a commander:

One, he is responsible for intelligence.

Two, if he believes in capabilities, he must not ask for intentions.

Three, the results he gets will vary directly with the quality of the people he uses and the amount of personal attention he gives.

We have improved our intelligence system considerably in recent years. We have raised our intelligence standards and have formulated sound doctrine to use as a base. We realize the need for continued improvement in our intelligence tech-

niques, and we are doing what we can to bring this about.

However, intelligence is only a tool for the commander, and unless he uses this tool properly it is wasted.

It is *his* tool.

It is *his* responsibility to keep it clean and sharp.

It is *his* job to know how to use it.

It is *his* fault if it doesn't work.

The basis of political and military action is intelligence. Total war and modern weapons make intelligence more important than ever before.

Canadian Minister of National Defense Brooke Claxton

One of the most difficult jobs of staff officers is to be able to concentrate their attention on the essentials of their jobs.

Air Marshal Sir Thomas W. Elmhirst

THE SHIPMENT OF REPLACEMENTS IN GROUPS

Lieutenant Colonel J. L. Frink, Jr., GSC
G-1, Command and General Staff College

HM

STRANGERS in a unit are ineffective! The replacement system during World War II was designed to provide for the maintenance of strengths of units engaged in continuous or protracted employment. This was to be accomplished by the introduction of individual replacements of the required qualifications to ensure full unit effectiveness.

However well the replacement mechanism generally functioned, opinion was unanimous that this concept, while theoretically sound, did not in practice maintain units at the desired level of efficiency, and cannot do so in the future without some modifications. Dominant psychological factors are ignored.

Specifically, the forwarding of a replacement as a one-man unit through the system to ultimate unit assignment results in deterioration of individual morale and fitness, inefficient employment of manpower, and failure to attain the high degree of unit efficiency that should be secured. Contrariwise, the early formation and subsequent delivery of small groups of individuals—groups retained intact until they reach that point in the replacement stream where they must be dissolved in order to accomplish individual assign-

ments—serve to develop and maintain good morale and thus correct the most serious weakness in the system of supplying individual replacements.

Historical Background

A brief survey of the general mechanics of World War II replacement operations will serve to provide sufficient background for an understanding of the nature of the imperfections in the method of supplying individual replacements.

In the early phases of World War II, dissatisfaction with the quality of replacements was expressed on numerous occasions by commanders of oversea units. The most common criticisms were concerned with the low quality of training displayed by the replacements, their lack of discipline, and their low state of morale.

General agreement existed that deterioration occurred steadily from the time training was completed in the Zone of Interior until unit assignment overseas was effected. During this time interval, conditions prevailed which impaired the proficiency of the individual trainee; in most instances, he was a good soldier when he left the replacement training center and

A replacement system in wartime, founded on groups or "packets" of individuals, would improve the welfare of the individual soldier and greatly increase the effectiveness of his contribution to his unit

professionally well equipped to become a valuable member of his new unit. These conditions included the considerable delay before assignment to an oversea unit, and the movement and processing through a series of personnel installations with groups of individuals who were strangers to one another.

From the time replacements left the replacement training centers until they joined the unit of final assignment, they were members of a series of groups which at best were loosely organized. Throughout the long travel, interrupted by extended periods of stagnation in storage depots, it was the exceptional soldier who acquired a friend who accompanied him to his final assignment. Normally, replacements joined their unit as a group of mutual strangers.

To digress momentarily, it is recognized that the rapid delivery of replacements to ultimate unit destinations through a minimum number of replacement installations by high-speed ocean and air transport will assist in alleviating one great weakness—the lengthy period in transit. Effective training programs, control, and supervision also would aid in maintaining relatively high standards of quality in the replacements until their delivery to using units. Whatever the approved training program and logistical plans may be, the organization of small replacement groups with their integrity maintained until final distribution offers many advantages for improving the practical application of the replacement concept.

Benefits to be Derived

Combat Motivation. The strongest force which supports a man entering combat is his self-esteem—his pride, his desire to maintain his personal honor. The strength of a man's self-esteem depends on the bond existing between him and his fellow soldiers.

In this regard, there is an overwhelm-

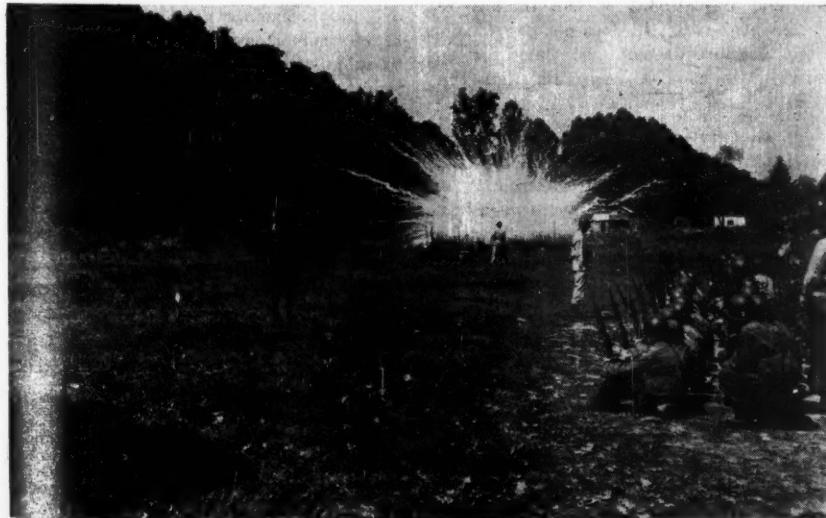
ing disadvantage in being shipped overseas and into combat as an individual. Integrated members of a unit enter combat with the bond of comradeship already formed. They have come to think of themselves as a group. They have so identified themselves with a unit that they feel and display pride and satisfaction in its achievements. Established by close associations, the ties within the group play a dominant role in combat motivation by serving two principal functions. They set and enforce group standards of behavior, thereby supporting and sustaining the individual under stresses he otherwise might not be able to withstand. The man who comes to his new unit alone definitely lacks the motivation derived from comradeship and the influence of individuals with whom he is constantly associated.

Understandably, this acquisition of motivation has greatest application to members of combat units, specifically to the "doughboy." It is his combat entry problem that practically demands remedial action. Combat motivation and support for the front-line soldier are highly desirable, and the means to provide them must be carefully considered for the sake of the individual's welfare and of the efficiency of the unit to which he is assigned.

Unit Efficiency. The abrupt injection into a combat unit of an individual replacement ignores his psychological unpreparedness for full and effective participation in the tactical operations of his new unit. His loneliness among strangers, together with the tremendous strain of initial combat, results in an obviously poor adjustment and affects materially his usefulness to the unit. In theory, the unit is at full strength numerically, but the efficiency of the unit has not necessarily increased by the arrival of replacements. Excessive casualties among both replacements and the older members of the unit probably will ensue because the



Psychological benefits to the individual soldier, and increased value to his combat unit would result from a wartime replacement system based on groups or "packets." Groups would be formed during the training period (as above) and would remain intact until assigned to units in the combat zone (as shown below).—US Army photos.



new men are not yet truly members of the unit in spirit.

Situations in World War II developed in which replacements were not even aware of the name of their squad or platoon leader or even their buddies on either flank. In some instances, evacuated casualties, upon being questioned, revealed ignorance of the designation of the unit to which they were assigned. Such conditions are not conducive to efficiency.

Psychological Readiness. Past experience provides valuable lessons on the close relationship between the replacement system and personality maladjustments. In instances where replacements are processed quickly and efficiently through the replacement pipeline, they are more apt to reach their units with a minimum of maladjustments.

Likewise, it is also indicated that group identity will be an insurance against personality disorders and the consequent excessive neuropsychiatric casualties. The recently established division replacement company will permit smoother integration and adjustment of the combat replacement, but it still does not provide the group support deemed necessary for the individual's combat readiness and the unit's full effectiveness.

A consideration of the above deficiencies leads to the conclusion that it is desirable to examine the feasibility of providing a continuity of group organization for the individual soldier from as early after his entry into the Army as seems practical until his arrival in the front line as a replacement in a combat unit.

Organization

Approach. The problem arises as to what strength should be established for the replacement group or "packet," and what should be the strength and composition of the arm and service components

of the packet. As an approach, we may obtain the basic data required if we determine the average daily replacement requirements, by branch and MOS, of the type using agencies in theaters of operations, and then relate this information to the Zone of Interior replacement training system.

In dealing with the problem in more detail, the successive steps will be to determine the gross loss data (both battle casualty and nonbattle casualty), and to convert this data to net replacement requirements by considering the men returned to duty from hospitals and from a captured and missing status. From these data, arm, service, and MOS requirements may be established.

Example 1. As a hypothetical example, let us examine the requirements of an infantry division under the following conditions and assumptions:

1. Divisions are initially at T/O&E strength.
2. Replacement requisitions are submitted daily under all types of operations.
3. Replacements arrive at the division replacement company 3 days subsequent to submission of the division replacement requisition.
4. Division replacement companies are initially at a strength of 400 men.
5. Replacement company replacements are initially all light weapons infantry men, Specification Serial Number (SSN) 745.
6. The theater return-to-duty rate is 65 percent of battle and nonbattle casualties (derived from a 90-day evacuation policy).
7. Theater conducts no infantry conversion training.

A long period estimate of monthly personnel losses in a division indicates a composition of arm and service casualties as follows:

Infantry	2,524
Artillery	310
Armored Cavalry	50
Engineers	100
All Others	320

It should be noted that the above strength represents monthly losses. On a daily basis, the losses for other than infantry and artillery are so small, and are composed of such a number of varying MOS's that their consideration at the division delivery level for inclusion in a packet becomes unwarranted. Further analysis of the infantry casualties only, by selected SSN, reveals that of the total infantry losses of 2,524, the majority are in two SSN's. The light weapons infantry (SSN 745) casualties total 1,773, while the heavy weapons infantryman (SSN 812) casualties number 290*. The remaining infantry SSN's suffer the balance of the losses of 461. This broad spread generally eliminates any one specific remaining SSN from consideration.

Reducing and converting the monthly losses provides a daily divisional gross replacement requirement of 60 SSN 745s and 3 SSN 812s. Further computations, by introducing the return for duty percentage, indicates a revised daily regimental net replacement requirement by selected SSN as being composed of approximately 7 SSN 745s and 1 SSN 812, a total of 8 individuals. The delivery *intact* at regimental level of this numerical strength group composed of light and heavy weapons infantrymen will provide a partial solution in the attainment of packet shipment organization for infantry replacement purposes.

While it is true that divisions will seldom initiate operations in full strength,

every effort will be exerted to make that possible. Reasonable understrengths do not affect materially the estimated numerical losses to be sustained. By comparing gross replacement requirements and initial divisional strengths for the second and third day in an attack of a position, for example, utilizing short period loss estimate data, this fact becomes evident. In suggesting the method of group replacement outlined above, the primary concern has been for the front-line infantryman, who particularly requires the group association as far forward in the combat area as is possible.

It is believed more desirable from the administration viewpoint of the replacement system to establish packets for delivery intact to a division, or a packet of approximately 24 individuals (21 SSN 745s and 3 SSN 812s). This will increase flexibility in use of packets by the division as well as reduce the number of packets which the replacement system must handle. To the base or standard infantry packet may be added additional individual SSN's as required. From the division level downward to regiments, battalions, and companies, the problem will be to provide indoctrination regarding the need to retain some grouping, however small, during the process of distribution and assignment. The maintenance of some grouping is desirable from the standpoint of the individual replacement's morale and motivation, and the unit's combat effectiveness.

Example 2. The statement has already been made that the daily replacement requirements for the several arms and services, other than infantry, do not involve large enough numbers or a broad enough SSN spread to warrant delivery of "intact packets" to divisions. This does not preclude such delivery to larger elements. For example, an analysis of the field artillery casualty data of field artillery units in a type field army indicates, by

* Casualty rates utilized are based on World War II, T/O data, modified by relating World War II SSN with those in use in current T/O&E's, further modified by new SSN descriptions listed in current career guidance publications. SSN 745, as used is equivalent to SSN's 4745, 2745, 1746; SSN 812 equivalent to SSN's 4812, 2812, 1812.

methods similar to those employed in establishing an infantry packet, daily net replacement requirements as follows:

For one (1) corps: a packet strength of 10, consisting of 3 SSN's.

For a type field army: a packet strength of 40, consisting of 24 gunners (SSN 844), 2 radio operators (SSN 776), 3 fire direction and liaison operators (SSN 704), 6 field linemen (SSN 641), 1 clerk-typist (SSN 405), 1 artillery survey specialist (SSN 577), 2 cooks (SSN 060), and 1 automotive mechanic (SSN 014).

Since the corps packet involves too few SSN's, the majority of requirements being less than a unit of one, the army packet appears more desirable. It is quite reasonable to propose that similar packets could be developed for other arms and services, even though the need is not as urgent. However, it should also be borne in mind that the majority of personnel requirements for service type units are in the nonbattle casualty area, and hence the unit requirements will vary considerably in their SSN composition.

Related Problems

Initial Formation. The earlier the group association can be established, the more firmly the interpersonal ties and bonds may be cemented. This indicates the need for identification of the individual with a given packet early in training, which should occur at branch training centers soon after the military occupational specialization training is initiated. Formation prior to this period, obviously, is inadvisable.

While packets could be formed at Zone of Interior replacement depots, the branch training center selection is preferred, since it permits longer group association, ensures that packets will be formed of individuals from the same branch training center and from the same training companies, and provides for minimizing replacement depot administration by the re-

ceipt of pre-formed group organizations. The method by which packet identification would be accomplished envisages component elements of the packet to be designated from among members of the specialist training companies, each component identified by the same packet number. Each complete packet would be assigned a different number obtained from blocks of numbers furnished each training center by higher command.

Reassembly. Reassembly of these packets should occur at the replacement depot after individual members thereof have completed their preembarkation furlough granted upon completion of training at branch training centers. If the branch training center was selected as the reassembly point, additional problems would arise. It would be necessary to expand housing facilities, to increase the administrative overhead to care for the reassembled graduate trainees, and to increase transportation facilities. Reassembly would create problems which must be resolved, including those caused by the staggered arrival at the replacement depot of members of packets and non-members.

Furlough Policy. An examination of World War II procedures indicates that replacements were given a 14-day furlough at home, plus travel time prior to shipment overseas. Upon reporting individually to the replacement depot, replacements usually were retained approximately 14 days awaiting shipment to the port of embarkation. To facilitate the receiving and processing of men whose packets are identified in reassignment orders, it would be highly appropriate for all the members of a packet to arrive at the depot from furlough within the same 24-hour period. Periodic strength reports of training centers thus would permit more definite co-ordination of phasing of replacements and units with shipping

schedules. Replacement depots would know in advance their daily arrivals.

In order to reassemble the packet in a 24-hour period, it would be necessary to establish a *total* furlough time for each branch training center for individuals reporting to each specific replacement depot. By adding to the fixed number of days at home the *average* travel time from training center to home and from home to replacement depot, this total time may be determined. The average travel time would be correct to within 1 or 2 days, since individuals should be at the training center nearest their home. This is the case, certainly, for infantry and artillery training centers, which are several in number and located in different sections of the country. For those arms or services which have only a single branch training center, the average travel times, obviously, will not be correct to within 1 or 2 days. This difficulty may be overcome by assigning individuals to training companies on the basis of the geographic location of their homes.

However, our major objective is to provide packet organizations for those individuals who will derive the greatest benefit from such an organization. This would be for those branches which have two or more training centers, namely, the combat arms. It is true that some individuals will have a day or two more furlough time at home than others, their residence being nearer the training center. However, the advantages of the entire

concept would appear to outweigh the small differences in individual "furlough time at home."

Casual companies for oversea shipment in World War II were composed of approximately 200 men each. Under the proposed system, these companies would consist of a given number of packets, plus a provisional group of various MOS's as required by the theater. It is not contemplated that the theater requisitioning system would be altered in any way. The theater would not requisition by packets, but it would continue to requisition quantitatively by branch, the requisition being accompanied as required by the theater rate table.

Conclusion

The strengths and compositions of packets, as developed above, are based on World War II loss experience factors. They would be revised as new factors more accurately reflecting current conditions are developed during the course of a war. Consideration of the underlying psychological and efficiency factors ignored in World War II indicate the need for a thorough analysis of the feasibility of arranging for the formation, shipment, and delivery of packets in the manner suggested here. It is not intended to imply that group identification is a panacea for all replacement system ills, but it has definite merits which stem from the desire to improve the individual's welfare and to increase his effective contribution to his unit's efforts.

A high morale is a pearl of great price. The more I see of fighting, the more I am convinced that the big thing in war is morale; it is probably the most important single factor.

Field Marshal the Viscount Montgomery of Alamein

Infantry Division Operations

Penetration vs. Envelopment

Lieutenant Colonel W. H. Hale, *Cavalry*
Instructor, Command and General Staff College

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THE following map exercise, with modifications and less certain requirements dealing with techniques of operation, was presented to the students at the Command and General Staff College. The purpose of the exercise was to develop the factors considered by a division commander in arriving at a decision as to whether to envelop or penetrate an enemy position.

Maps and map co-ordinates are listed for the convenience of the reader in the event that the designated maps are available. It is not necessary to possess the specific maps referred to, as the sketch maps accompanying the exercise will provide all the map information necessary to solve the problem. It is suggested that the reader solve this problem as though he were actually the commander of the 20th Infantry Division.

1. GENERAL SITUATION.—*a. Maps.*—FRANCE, 1/100,000, CHARTRES NOGENT—LE ROTROU; FRANCE, 1/50,000, DREUX—COURVILLE.

b. Ground forces.—(1) Blue.—(a) The I Corps, a part of First Army, has been advancing to the east along the axis: MORTAGNE Q7016—LA LOUPE R0308—PARIS with the missions of seizing crossings over the EURE River and of capturing PARIS from the southwest (see Sketch Map 1).

c. On 10 Aug, I Corps issued the following operation order:

CLASSIFICATION

I Corps
MORTAGNE Q7016, FRANCE
100800 Aug ----

Opn O 7
Map: FRANCE, 1/100,000, CHARTRES NOGENT—LE ROTROU

1. *a. Annex 1, Int (Omitted).*
b. (1) First Army continues Adv E to seize PARIS from the SW.

(2) II Corps continues Adv E to seize crossings over the EURE River and protect the S flank of First Army.

(3) Twenty-ninth TAF (Ftr) Spts First Army.

(4) Annex 2, Opn overlay (see Sketch Map 1).

2. *a. I Corps Atks 110100 Aug with Divs abreast along axis: MORTAGNE Q7016—LA LOUPE R0308, to seize PARIS from the SW.*

b. LD is LC held by Corps Armd Cav.

c. Bomb safety line: AUNAY River R5804—MORTE River R5012—EURE River R3631.

3. *a. 20th Inf Div:*
Atchd: 165th AAA AW Bn Mbl
302d Cml Mort Bn

After seizure Objs 3 and 4, continue Atk on corps O toward PARIS.

b. 55th Inf Div:

After seizure Objs 5 and 6 continue Atk on corps O toward PARIS.

c. 72d Inf Div:

(1) After seizure Objs 1 and 2, continue Atk on corps O towards PARIS.

(2) Protect corps S flank.

d. Corps Arty:

(1) 601st FA Gp: G/S; Reinf fires 72d Div Arty.

(2) 602d FA Gp: G/S; Reinf fires 20th Div Arty.

(3) 603d FA Gp: G/S; Reinf fires 55th Div Arty.

(4) 604th FA Gp: G/S.

(5) 401st AAA Gp: Protect corps Arty, assembly areas, and corps instls.

(6) 402d AAA Gp: Provide gun Def corps Z. Priority: Brgs in Z.

(7) Annex 3, Arty.

e. 205th Armd Cav:

(1) Maintain contact with En in present Psn.

(2) When passed through by 55th Inf Div, corps Res in FORET DU PERCHE 7826. (Note: Not shown on Sketch Map 1.)

f. 209th Armd Cav:

Unless the situation demands or favors a penetration, a commander will seek to strike the flank or rear of the initial disposition of the enemy main forces, and toward an objective in the enemy rear

(1) Maintain contact with En in present Psn.

(2) When passed through by 72d, 20th, and 55th Inf Divs, corps Res in FORET DE SAUSSEY Q9206. (Note: Not shown on Sketch Map 1.)

g. 302d Cml Mort Bn:

Atchd 20th Inf Div.

h. Corps Engr:

(1) 501st Engr C Gp: Spt 72d Inf Div with one Engr C Bn.

(2) 502d Engr C Gp: Spt 20th and 55th Inf Divs with one Engr C Bn each.

i. Corps Res:

23d Armd Div.

Be prepared on corps O to exploit corps success. Priority in Z 72d Inf Div.

x. (1) Mvmt to Fwd assembly areas under cover of darkness.

(2) Strict enforcement of CI measures to ensure secrecy.

(3) Mvmt of 23d Armd Div in Z 72d Inf Div will be co-ordinated by Comdrs concerned.

4. Army Adm O 6, Corps Adm O 3.

5. Index 5, SOI, Annex 3, Sig. Strict Rad silence prior to Atk.

SMITH

Lt Gen

Annexes: 1—Int (Omitted)

2—Opn Overlay (see Sketch Map 1)

3—Arty (Omitted)

4—Sig (Omitted)

Distr: A

OFFICIAL:

/s/ JONES

G-3

CLASSIFICATION

d. Air.—Although Blue has air superiority in the area of operations, the Red air force is capable of maintaining daily air reconnaissance and of launching attacks by a limited number of fighters.

2. SPECIAL SITUATION.—a. The 20th Inf Div, pursuant to the corps order, attacked at 110100 Aug with the 60th and 59th Infs in assault. By 110500 Aug the assault elements had captured the high ground in the vicinity of Hill 264 R1210, Hill 277 R1011, and BUISSON ELOUIS R1014. While reorganizing, these regiments were counterattacked by Red forces estimated to be two infantry battalions supported by tanks and artillery fire. By 0800 the counterattack had been repulsed.

b. The 20th Inf Div resumed the attack at 110830 Aug with the 60th and

59th Inf's abreast. The attack was opposed stubbornly by Red, but by 111800 Aug the Blue 60th and 59th Inf's had overrun parts of the enemy main battle positions on Hill 258 R2014. The 55th Inf Div attacked against heavy resistance, and by darkness 11 Aug was completely stopped. The 72d Inf Div advanced against light resistance.

c. At 111815 Aug, Red launched a co-ordinated counterattack with infantry and tanks from the vicinity of CHATEAUNEUF R2118. At 112100 Aug the Red counterattack had been stopped, and Blue forward units were entrenched and organized in the positions shown on Sketch Map 2.

d. At 112100 Aug the following message was received from the Commanding General, I Corps: "Corps resumes the attack early 12 Aug."

e. At 112100 Aug, the Commanding General, 20th Inf Div directed his general staff to be prepared to present their staff estimates to him at 2130.

f. The 58th Inf and the 20th Hv Tk were directed at 111400 Aug to be prepared to move forward in either the zone of the 60th or the 59th Inf on one hour's notice.

3. SPECIAL SITUATION CONTINUED.—At 112130 Aug, the Div Intelligence officer presented the Div Commander with the following Intelligence Estimate:

CLASSIFICATION

G-2 Section, 20th Inf Div

FOUVILLE R1510, FRANCE

112130 Aug -----

Maps: FRANCE, 1:100,000, CHARTRES NOGENT—LE ROTROU; FRANCE, 1:50,000, DREUX—COURVILLE.

1. MISSION.

a. Seize high Grd Vic of LES CHAISES R3215 and NOGENT LE ROI R4324.

b. Continue Atk toward PARIS.

2. THE SITUATION AND COURSES OF ACTION.

a. Considerations affecting the possible En courses of action and our mission.

(1) Characteristics of the area of Opsns.

(a) Wea. (Note: Detailed discussion omitted—weather will be clear—will favor defense and be suitable for attack by either Blue or Red forces.)

Beginning Nautical Twilight	Morning (BMNT)	End Evening Nautical Twilight (EENT)
11 Aug 0337		2047
12 Aug 0339		2045
13 Aug 0341		2043

(b) Terrain

(i) The critical terrain features are: the high Grd 1,000 yd N of ROUVRAY R1812; Hill 258, the dominant natural terrain feature; CHATEAUNEUF EN THYMERAISS, the key road Cen; the high Grd in the Vic of LES CHAISES, which is the last high Grd W of the river; and the intact Brg over the EURE at NOGENT LE ROI.

Numerous and excellent Pts of Obsn exist throughout the area, such as Hill 258, high Bldgs in CHATEAUNEUF, and church steeples in the small villages. Flds of fire throughout the area are generally excellent except where limited by the woods, the villages, and the relief and drainage system.

No impassable obstacles to foot or Armd Mvmt exist in the area except the EURE River.

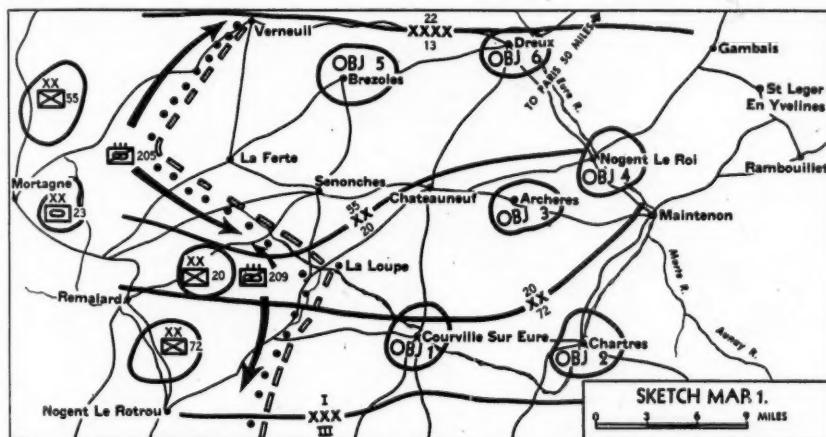
Good concealment and cover is offered by CHATEAUNEUF, the various woods in the area, the small villages, and by the valleys of the small streams which flow into the EURE.

Avenues of approach into the En Psn are along the axis: ARDELLES R1615—CHATEAUNEUF EN THYMERAISS — ACHERES R3117; Hill 258—ACHERES. The road net

is adequate during clear Wea when secondary roads and trails can be used. The terrain in the S of the 20th Inf Div Z offers no well defined avenues of approach into the En Psn, but imposes no appreciable obstacles to cross-country Mvmt of Inf and Tks.

The most direct avenue of approach by the En to the high Grd in our Psn is along the ridge: FAVIERES R2013—LA VILLENEUVE R1713. Another avenue of approach into our Psn is along the axis: CHATEAUNEUF EN THYMERAI — DIGNY

and Mat. Eight Inf Bns of this Div have been located in our zone and approximately one Bn of the Div is engaged in the Z of our 55th Inf Div. Thus it can be assumed that there are eight understrength Inf Bns opposing us in our Z. Seven of these battalions are locally available to enemy front-line units (to include enemy regimental reserves). It is estimated that these forces are supported by three understrength L Arty Bns, one understrength M Arty Bn, and one understrength Hv Tk Bn. First Army estimates



R1414. A flanking Atk by the En against our S flank has excellent avenues of approach into our Psn from the Vic of DANGERS R2910.

(ii) The terrain favors equally En Atk or Def, in that the En Contls the crest of Hill 258.

(iii) The terrain is suitable for our Atk, since we have footholds on Hill 258. Once Hill 258 is taken, we will possess the dominant Obsn in our Z.

(2) En Sit.

(a) Str—20th Inf Div is opposed by Elms of the Red 47th Inf Div which is now operating at about 70 percent Str in Pers

that, Wea permitting, a Max of 150 Ftr sorties daily are available to the En to Spt his Grd Opns in our army area. This is based on an operational Acft Str of 50 Ftrs, each of which can make three sorties daily.

(b) Composition.—The Red forces are organized and equipped in a manner similar to our own forces.

(c) Dispositions.—(See Sketch Map 2.)

(d) Recent and present significant activities.—Red has been ordered to defend CHATEAUNEUF and Hill 258 at all costs. Red Arty is disposed in depth.

The Red 47th Inf Div has demonstrated by its recent CAtks that it is aggressive and will Atk regardless of numerical inferiority, if a favorable Sit presents itself, or in an effort to gain time to improve his Def Instls.

(e) Status of Sups.—It is believed that En Sups are adequate for conducting both Def and offensive Ops.

(f). Reinforcements.—Reinforce-

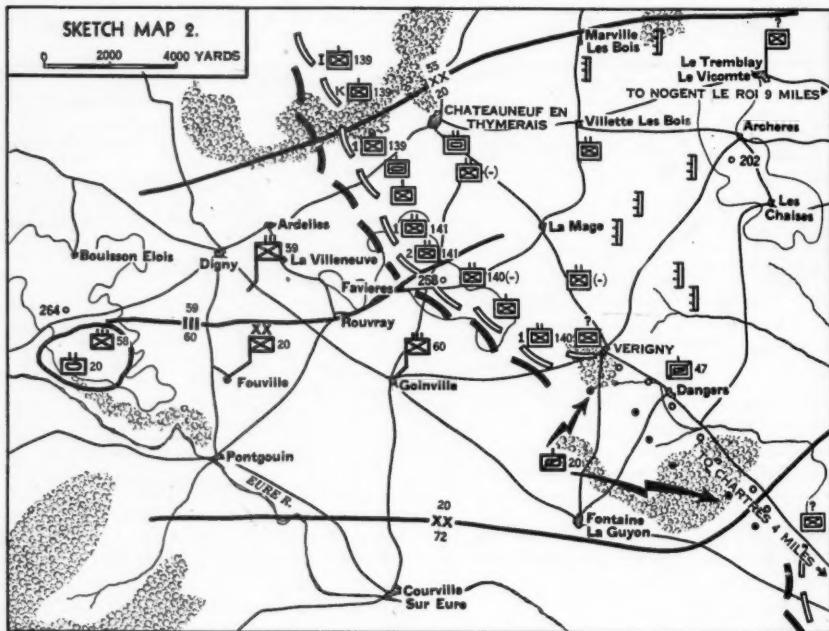
ST LEGER EN YVELINES R6130, last observed by TAC 111830 Aug.

b. En capabilities.

- #### (1) Enumeration of En capabilities.

(a) The En can Atk now frontally along the line of contact with seven understrength Inf Bns and an understrength Hv Bn supported by an estimated four understrength Arty Bns.

(b) The En can Atk with seven un-



ments available to the En in our Z are as follows:

(i) One understrength Inf Bn at VILLETTES LES BOIS R2618.—Last reported 112130.

(ii) Red 22d Armd Div at GAM-
BAIS R5537, last observed by TAC 111830
Aug.

(iii) Unidentified Red Inf Div at

derstrength Inf Bns and one understrength Hv Tk Bn, Sptd by three understrength light Arty Bns and one understrength M Arty Bn, launching a flanking Atk against our S flank with the additional Strs and at the times listed below:

(i) Understrength Inf Bn at VIL-

LETTRE LES BOIS R2618, motor 112150, foot 120035.

(ii) Red 22d Armd Div at GAMBAIS R5537, motor 112300.

(iii) Red Inf Div at ST LEGER EN YVELINES R6130, motor 112150, foot 121330.

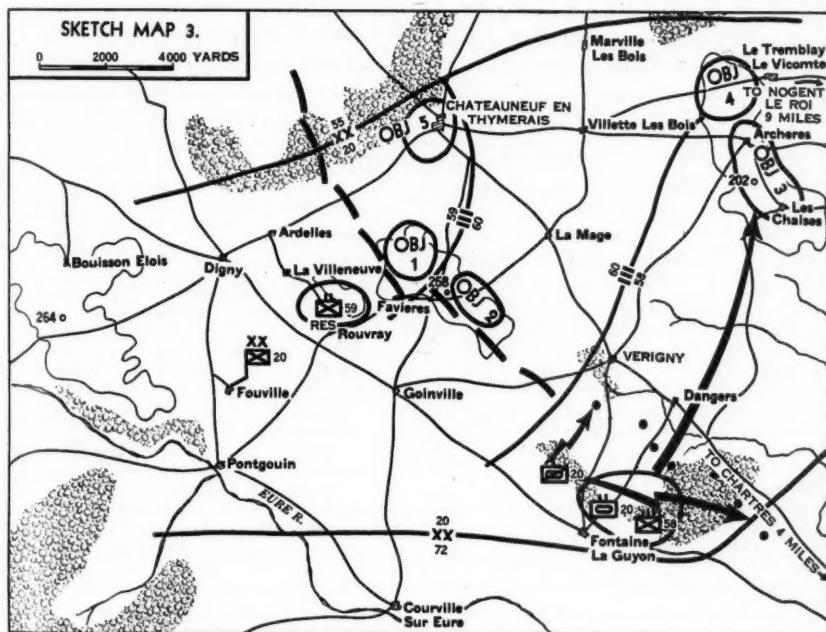
(c) The En can defend now against our Atk in his present Psns with a force of seven understrength Inf Bns and one understrength Hv Tk Bn supported by an

with the unidentified Inf Div by 2150 tonight if Mtzd, or by 1330 tomorrow if on foot.

(f) Army states that based on an estimated operational Str of 50 Ftrs, Wea permitting, the En can Atk Trs and Instls in the army area with 150 Ftr sorties daily.

(2) Discussion and analysis.

(a) There is litte indication of the En adopting any of his Atk capabilities unless he is Reinf. However, the Red 47th



estimated four understrength Arty Bns.

(d) The En can withdraw beyond the ACHERES—LES CHAISES ridge at any time prior to our Atk.

(e) The En can Reinf his frontal attack or defense in this area for Atk or Def with the understrength Inf Bn at VILLETTES LES BOIS by 2150 tonight; the Red 22d Armd Div by 2300 tonight; or

Inf Div has demonstrated by its recent CAtks that it is aggressive and will Atk regardless of numerical inferiority, if a favorable Sit presents itself, or in an effort to gain time for further Def preparation. If the En does Atk, he will have the greatest opportunity for success on our exposed S flank.

(b) The following indications point

to the adoption by the En of his Def capability: Red has been ordered to defend CHATEAUNEUF and Hill 258 at all costs; this has been confirmed by PWs captured by us today; his Arty is disposed in depth; he has strengthened his Def Psn; his Div Res is centrally located to Spt the Def.

(c) The only indication of withdrawal is the Mvmt of Hv Equip to E over the remaining Brgs at DREUX and NOGENT LE ROI.

(d) There is no indication that either of the two Red Divs located E of DREUX will Reinf the Red Trs in our Z.

a. A stubborn Def by the En in his present Psn can delay but not prevent the accomplishment of our mission.

b. An attack by the En, using his presently available forces, either frontally or by enveloping our exposed S flank, may obtain some initial success but will not prevent the accomplishment of our mission.

c. If the enemy Reinf his Atk or Def, prior to our Atk, with his available Inf or Armd Div or with both, it is extremely doubtful that we can accomplish our mission with forces presently available.

d. The Cone of all available En air Str

TABLE OF ENEMY TIME LENGTHS AND RATES OF MARCH

Unit	TIME LENGTHS (MINUTES)				Motor	
	Men on foot (column of twos)					
	Day Cross-Country 1½ mph	Night Roads 2 mph	Day Roads 2½ mph	Night Close Column 75 Veh/mi —10 mph		
Inf Div	216	162	130	382	703	
Inf Regt	72	58	44	45	90	
Inf Bn	24	18	15	10	19	
Tk Bn				17	33	
Arty Bn				15	29	
Armd Div				396	791	
Armd CC				69	139	

(e) En air Atk is a continual threat.

(3) Relative probability of the adoption of En capabilities.

First: b(1)(c) concurrently with reinforcement by the understrength Inf Bn at VILLETTES LES BOIS and limited air attacks.

Second: b(1)(b)(i) or b (1) (a) concurrently with (f).

3. EFFECT OF ENEMY COURSES OF ACTION ON OUR MISSION.

in our Z can delay the accomplishment of our mission.

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G-2

CLASSIFICATION

NOTE: a. An attack by the 20th Inf Div on 12 Aug can be supported administratively.

b. The following arbitrary rules of thumb may be used for determining enemy

capabilities. *These rules are for purposes of instruction only.* In actual operations, the G-2 will prepare similar tables based on actual experience with the enemy.

In applying the table (p. 58):

1. The starting time and place are the time and place that the enemy unit was last reported.

2. Select a logical point that the enemy unit must reach to implement a particular course of action.

3. March distance is the distance between 1 and 2.

4. Arrival time is the starting time,

ing, change the rate of march from day to night. If the column is in the process of closing at EENT, continue to close at the day rate of march.

8. To move an infantry division (armored division), move and close two infantry regiments (combat commands).

4. FIRST REQUIREMENT.—Study the situation from the viewpoint of the commander of the 20th Inf Div.

a. As Commanding General, 20th Inf Div do you accept or reject that part of the Intelligence Estimate pertaining to the enemy capabilities? [Assume DANGERS as logical point from which enemy can

	Inf Bn at VILLETTE LES BOIS	22d Armd Div at GAMBAIS	Inf Div at ST LEGER EN YVELINES	Day	Night
	(foot)	(motor)	(two roads)		
Distance, miles	6.5	6.5	33.0	34.25	+
Rate of march, mph	2	10	15	15	10
Travel time	0315	0039	0212	0217	+
Closing time	0018	0010	0219		0045
Last observed at	2100	2100	1830		1830
	2433	2149	2301		2149
Earliest employment	120035	112150	112300	112150	

plus the march time, plus the closing time (to the nearest five minutes).

5. In the case of a piecemeal attack, compute the arrival time of the nearest enemy unit that can initiate action; closing time is not computed.

6. At BMNT, if the column is not closing, change the rate of march from night to day. If the column is closing at BMNT, continue to close the column at the night rate of march.

7. At EENT, if the column is not clos-

implement his reinforcement capability. Distances from DANGERS to VILLETTE LES BOIS—6.5 miles; GAMBAIS (using two roads)—33 miles; to ST LEGER EN YVELINES (using two roads)—37 miles.]

5. SECOND REQUIREMENT.—You are the Commanding General, 20th Inf Div. It is now 112145 Aug.

a. What courses of action are open to you?

b. State the advantages and disadvantages of each course of action.

c. State the decision (Who, What, When, How, Where, and Why) which you, as the division commander, make at this time.

NOTE: Based on staff estimates submitted to Commanding General (omitted), assume courses of action considered are within capabilities of division.

SOLUTION AND DISCUSSION OF FIRST REQUIREMENT:

a. The enemy attack and defense capability indicated in Par 2b of the Intelligence Estimate are supported by the enemy dispositions indicated in Sketch Map 2.

b. The commander is not interested in whether the enemy will use one road or two. He depends on G-2 to tell him *when* the enemy can get there. If two roads are available, computations must be based on two roads, but it is exceptional to state this in the estimate. It is obvious that due to bottlenecks at DREUX and NOGENT LE ROI, only one of his divisions can use the available two roads (bridges) at any one time, but the estimate is accurate as stated because the divisions are listed as separate capabilities. If either division is used by the enemy to reinforce his troops on our front, we are likely to fail in our mission. It is proper, but not necessary, in all cases for G-2 to state also the length of time it will take to implement a reinforcing capability once the enemy unit starts moving in response to action on our part.

c. The earliest enemy reinforcement capabilities, as computed to DANGERS, which is a logical point from which he can implement possible courses of action, are indicated below (computations for movement by foot of the enemy infantry division located at ST LEGER EN YVELINES were derived from a forced march graph, p. 59):

SOLUTION AND DISCUSSION OF SECOND REQUIREMENT:

a. In this situation, Red occupies an

important terrain feature. He will have the entire night to improve his position, bring up fresh troops, and register his weapons. It must be assumed that by daylight 12 Aug, Red will have consolidated his defenses.

b. The following course of action is available to you in this situation in the northern part of your zone.

To attack early on the morning of 12 Aug with three regiments abreast along the axis: DIGNY R1414—CHATEAUNEUF—ACHERES R3117—to seize the high ground in the vicinity of LES CHAISES R2315, prepared on Div O to continue the attack to seize NOGENT LE ROI.

Advantages.—This course of action offers a direct and well-defined route, over an excellent road net, to the high ground in the vicinity of LES CHAISES. Both the terrain and the road net permit the use of tanks in the assault all the way to the objectives.

Disadvantages.—Red troops are disposed so as to block this course of action. An attack along this axis would require the massing of troops and supporting weapons on the west side of Hill 258, in close proximity of the enemy, and within range of the bulk of the Red weapons. The presence in CHATEAUNEUF of a Red armored battalion would make the capture of that city difficult and costly. If this course of action were employed, the division main effort would be launched against a defended town, along a road exposed to excellent Red observation and fields of fire, and with its flank exposed to a strong Red position on Hill 258.

c. The following course of action is feasible in the center of your zone.

To continue the attack early on the morning of 12 Aug with three regiments abreast along the axis: FAVIERES 2013—Hill 258—LE MAGE 2514 to seize the high ground in the vicinity of LES CHAISES R3215, continuing the attack on Div O to seize NOGENT LE ROI.

Advantages.—This course of action would permit the division fire power to be massed initially to ensure the early capture of Hill 258. In turn, this would permit the main effort to move down hill from Hill 258 to LES CHAISES. This course of action avoids risking the division main effort against the defended town of CHATEAUNEUF. Instead, it offers a short, direct, and down hill approach to all objectives, over terrain which permits the close support of tanks.

Disadvantages.—The adoption of this course of action would also require the massing of troops and supporting weapons on the west side of Hill 258 in close proximity to the enemy and in range of the bulk of the Red weapons. In using this course of action, the division commander would pass fresh reserves through units which had already been stopped, and attack the enemy where his defenses are very strong. An attack along this route would permit the enemy to mass his fires against the entire main effort. Even though this course of action were successful, it would permit Red to fall back along his line of communications. Moreover, support of this attack forward of Hill 258 would lack the advantage of a good road net.

d. The following course of action is logical in the southern section of your zone.

To continue the attack early on the morning of 12 Aug with three regiments abreast along the axis: FONTAINE LA GUYON R2606—DANGERS R2910, to seize the high ground in the vicinity of LES CHAISES R3215, prepared to continue the attack on Div O to seize NOGENT LE ROI.

Advantages.—The adoption of this course of action permits the division main effort to avoid the Red main defenses on Hill 258 and CHATEAUNEUF. Instead, the main attack is launched from the enemy's south flank and directed toward an exposed critical terrain feature deep in the

Red rear, avoiding all known enemy positions. This course of action permits the Blue 20th Inf Div to take advantage of the success attained by the 72d Inf Div, and to strike Red a decisive blow in a spot where his defenses are weakest. The use of this course of action promises a speedy and inexpensive seizure of the high ground in the vicinity of LES CHAISES which will facilitate the capture of objectives more recently assigned, and will deprive Red soon of the use of an important avenue of escape to the EURE River. This course of action offers favorable approaches for the massing and delivery of the division main effort with a maximum chance of obtaining surprise. It also permits the main effort to employ tanks in the assault so as to deliver a decisive blow at the high ground in the vicinity of LES CHAISES and, if necessary, at Hill 258. With a weak enemy flank, suitable terrain, and with sufficient time available for movement of attacking troops into position, an envelopment offers a greater chance for decisive results than penetration directed against the strongest enemy position, even though Red is slightly over-extended.

Disadvantages.—This course of action would launch secondary attacks against the decisive terrain feature—Hill 258. Until Hill 258 is captured, the division main effort will be under observation from Hill 258, necessitating the continued use of smoke, and will be subject to counter-attacks launched from the direction of CHATEAUNEUF.

e. Decision: 20th Inf Div attacks early 12 Aug, with three regiments abreast on the axis: FONTAINE LA GUYON R2606—DANGERS R2910 to seize the high ground in the vicinity of LES CHAISES R3215, prepared to continue attack on division order to seize NOGENT LE ROI.

f. The scheme of maneuver employed by the CG, 20th Div, to implement this decision is indicated on Sketch Map 3.

g. Summary: A penetration is de-

manded when the enemy flanks are unsatisfiable or there is a lack of time to make an enveloping maneuver. A penetration is favored when the enemy is overextended or when terrain and observation are more favorable for effective co-operation of the combined arms. Unless a penetration is demanded or favored, we seek to strike the enemy in the flank or rear of the initial disposition of his main forces, and toward an objective in rear of his front lines. A successful envelopment depends largely on the degree of surprise attained and the ability of the secondary attack to contain the bulk of the enemy's forces. Superior mobility and air superiority increase the prospect of success.

We have developed in this situation that:

- a. None of the conditions which demand a penetration are present in the situation which faces the Commanding General, 20th Inf Div, at 112100 Aug.
- b. The only condition favoring a penetration is the overextension of the enemy.
- c. All of the conditions favorable to

an envelopment are present. The chances for surprise are excellent. There is adequate time available during the night 11-12 Aug to move the attacking troops into position for an envelopment of the enemy south flank. The mobility of the 20th Hv Tk Bn, the light opposition, and the adequate space for maneuver on the south flank, offer good prospects of seizing the objective deep in the enemy rear, while avoiding his organized front. The secondary attack has good prospects of containing the bulk of the enemy forces. Blue has air superiority.

d. Therefore, the first and second courses of action should be discarded in favor of the third course of action, which is an envelopment. The commander's decision to envelop the enemy's south flank has these advantages: it enables the main attack by the 58th Inf and the 20th Hv Tk Bn to be launched against light opposition; it is aimed at taking the high ground in the vicinity of LES CHAISES, which is in the rear of the Red front lines; and it bypasses the Red main positions on Hill 258 and the city of CHATEAUNEUF.

Great successes in war cannot be gained without great danger.

Moltke's War Lessons

In an envelopment, the main attack is directed against the flank or rear of the initial disposition of the enemy's main forces and toward an objective in rear of his front lines. It seeks to surround that portion of the enemy's forces both in front of and on the objective. It is assisted usually by a secondary attack directed against the enemy's front.

In a penetration, the main attack passes through some portion of the area occupied by the enemy's main forces and is directed against an objective in his rear. It is characterized by a rupture of the enemy's dispositions; the seizure of objectives by operations through the gap; and the envelopment of one or both flanks created by the break-through.

FM 100-5, Field Service Regulations, Operations.

MILITARY NOTES



UNITED STATES

Reserve Plan

The US Army recently issued its plans to increase to 367,000 officers and men the organized reservists who would be ready for quick combat duty. There are about 245,000 such reservists now.

The new plan, which will take 5 years, is designed to pull together the trained, active reserve forces and separate them in organizations from the inactive and honorary reserves.

A primary objective is to increase the combat readiness of 25 cadre divisions and other mobilization units that could be called upon quickly to fill out the Regular Army's 10 divisions and those of the National Guard. The Regular Army's authorized strength for the year starting 1 July 1950 is 630,000.

The full 367,000 Reserve man power plan calls for 146,000 officers and 221,000 enlisted men. The Army said an advertising campaign would be conducted to attract enlisted men.

Costs of the program were estimated at \$115,000,000 in the fiscal year starting 1 July 1950, increasing to \$140,000,000 in the fiscal year 1952, and rising gradually to a peak of \$180,000,000 by 1956.

Under the new program, the Organized Reserve Corps will have three main groups—the Active, Inactive, and Honorary Re-

serve. Making up the Active Reserve will be organized Reserve units and a Voluntary Reserve composed of Active Reservists who have not been assigned to troop units or who have no mobilization assignments.

The make-up of the organized section of the Active Reserve was listed as 17 infantry, 3 armored, and 5 airborne divisions, with 100 percent officer strength and cadre enlisted strength. Some 4,500 ground and service units are to have 100 percent officer strength and a minimum of cadre enlisted strength.

Defense officials said the Organized Reserve school system, to provide progressive training for individual reservists unable to take part in unit training, would be expanded. Plans provide for weekend and evening assemblies.

In deciding on 367,000 as the minimum strength requirement of the Active Reserve, Army spokesmen said previous plans for a much larger reserve force constituted "an unnecessary drain upon the national economy." A program providing for a total of 955,000 reserve officers and men is nevertheless still listed by the Army as "desirable."—*The New York Times*.

Smokeless Powder

Smokeless powder can now be made more cheaply and quicker, due to a development of the US Dept of Agriculture's Southern Regional Research Laboratory.

It is a matter of a better method of taking sulfuric acid out of the finished nitrocellulose or gun cotton. The explosive for large Army and Navy guns is made by nitrating the short fibers left on cottonseed after ordinary ginning of cotton. Nitric acid does the job, but sulfuric is used to help along the process. It must be washed and boiled out, otherwise the finished powder will be unstable and decompose when stored.

The new process takes less space, fuel, and time.—*Science News Letter*.

Armories

The Army announced recently a \$10,000,000 armory construction program to provide training space for the Organized Reserve in 21 states. In addition, the Army will purchase buildings in several cities and convert them for training.

The construction projects will use federally-owned lands or property on which the government holds long-term rights.—*The New York Times*.

Ordnance Safety Device

A safety device for automatic bullet-loading operations has been developed at the Frankford Arsenal, Philadelphia, Pennsylvania. The device will detect a flare occurring at any loading station, automatically flood the affected area with water, and simultaneously apply a braking mechanism to the machine. The equipment is so designed that a flare occurring at any station will actuate the sprayhead at that particular station only, simultaneously apply the brake, and disconnect the clutch. A reset button enables the machine operator to stop the water flow when desired. The clutch must be manually re-engaged.—*Ordnance*.

Airborne Center

An Army Airborne Center has been established at Fort Bragg, North Carolina. Broad concepts of airborne operations will be developed at the new Center in close co-operation with the Air Force and the Navy. Current joint airborne doctrines are to be studied with emphasis on tactics and training and Army requirements for transport aircraft. Tests and utilization of special airborne weapons and equipment will also be evaluated.

The Airborne Center will be an agency of the Chief of Army Field Forces and will have three major departments: Department of Joint Airborne Doctrines, Tactics, and Techniques; Department of Joint Airborne Training; and Department of Joint Tactical Evaluation and Testing of Airborne Equipment. Existing facilities at Fort Bragg will be used.—*Report to the Army*.

Aircraft Detection

Syracuse University physicists disclosed recently that they were working on a research project aimed at detection of enemy aircraft through heat radiated by the planes' engines.

A second phase of the project sponsored by the Air Force is the possibility of using "heat-guided" missiles, probably on strategic industrial targets, according to the assistant professor of the University's institute of industrial research. He and his assistants are doing research on thin mineral films with a \$30,000 grant given the University by the Air Materiel Command.

"Heat detection has unlimited possibilities, with civilian uses yet to be explored," the scientist said.

He did not indicate how far researchers had progressed in their work. But, he added, elimination of compensation for heat from the sun's rays was a major problem.—*The New York Times*.

Chemical Corps

Postwar developments in the Chemical Corps field include a revised model of the flame thrower (above) and a new type gas mask (below, left). The canister position for the new mask eliminates the need for a hose, as shown at the right. The new type gas mask permits better visibility and easier breathing.—US Army photos.



Synthetic Mica

The remarkable properties of high-grade sheet mica as an insulator make it invaluable as a strategic war material for radio tubes, radar equipment, condensers, and airplane spark plugs. Although the United States is the world's largest user of mica, it produced only 135 tons in 1948 and had to import 10,000 tons, chiefly from Brazil and India.

In Washington, the National Bureau of Standards recently announced that mica had been successfully synthesized by three of its scientists. The new product is equal to natural mica as an insulator and far superior in its ability to withstand high temperatures.

Blending powdered quartz, magnesite, and bauxite, the bureau men added a crystallizing agent (a fluorosilicate compound) and melted the ingredients in a platinum-lined crucible at nearly 2,500° F. As the furnace cooled, mica sheets grew from tiny "seed crystals" at the cone-shaped bottom of the crucible. Because crucibles lined with carbon or ceramic failed to do the trick, the bureau scientists used expensive platinum. They hoped to reduce costs by melting down the metal and reusing it.—News report.

Eskimo-Type Footwear

Rubber and canvas *mukluks* which compare favorably with native Eskimo footwear in warmth are being manufactured by the Hood Rubber Company division of B. F. Goodrich for use in the Arctic by the US Armed Forces.

The *mukluk* is patterned after the ancient Chinese principle of adding layers of clothing as the temperature falls. Men wear one pair of light cotton and wool socks, two pairs of heavy wool socks, and one pair of felt bootees inside the *mukluk*. The layer idea permits "breathability," or circulation of air to the feet.—*Army Navy Air Force Journal*.

Domestic Quartz

In response to queries regarding domestic sources of quartz inserted by the Signal Corps in mineralogical and geological publications, numerous reports and samples of crystalline quartz from various sections of the United States have been received. Among the samples received were a number of reasonably good specimens from Montana and Idaho, which, according to Signal Corps engineers, warrant further investigation. If preliminary investigation reveals the presence of sizable deposits of suitable quartz, the information will be co-ordinated with other interested government agencies and turned over to the appropriate agency for exploitation.

Quartz, a critical item largely imported from outside the United States, is used in large quantities in electronic and communication equipment, such as radios, to stabilize frequencies. A domestic source, therefore, is of vital importance to the Signal Corps and the communications industry.—Office, Chief Signal Officer.

Sonic 'Prop' Plane

A propeller-driven airplane that can fly at the speed of sound, but still have a low fuel consumption rate at slower speeds over long distances, is being developed by the air arm of the Navy.

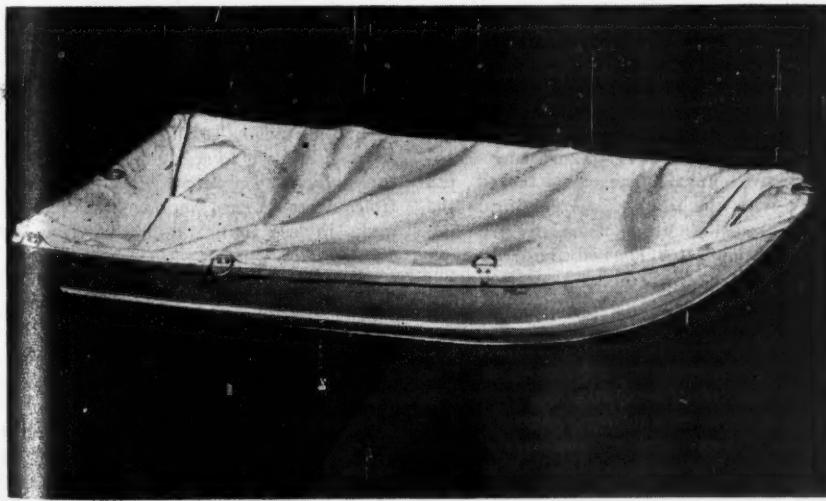
The Air Force also is interested in such a plane and both services are working with the National Advisory Committee for Aeronautics on the project.

Such a plane would be powered by a turbo-prop engine. The only engine of this type now about ready for flight is the Allison T-40.

The chief problem in developing a turbo-prop plane that could fly at speeds approaching or touching the speed of sound (660 miles an hour above 30,000 feet) is the propeller. A propeller capable of 55 percent efficiency would push a plane through the air at the speed of sound.—*The New York Times*.

Arctic Equipment

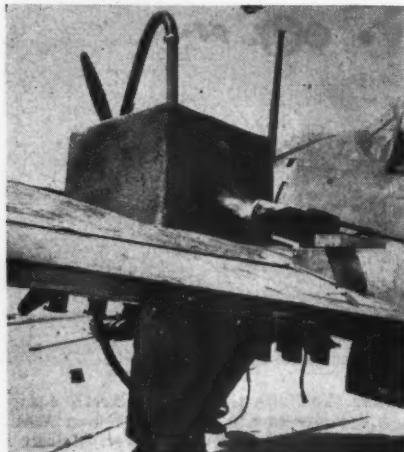
US Army Quartermaster technicians are continuing their efforts to design Arctic equipment which is lighter, stronger, more durable, and easier to use. Above, a 9-man Arctic tent, two of which are joined, making an 18-man general purpose shelter. Below, a boat-shaped plastic sled.—Department of Defense photos.



Anti-Fire Paint

A rubber airplane fuel tank, coated with a substance recently developed at the request of the Navy, showed little effect from having a 1,500-degree Fahrenheit flame blasted at it.

A two-foot-square self-sealing fuel tank,



Above, left, gas tank painted with fire resistant paint withstanding direct flame; above, right, uncoated tank destroyed after being subjected to same heat and flame.

itself had suffered very little damage.

Then the torch was applied to a similar tank, not treated with the paint. After a few minutes it began to smoke and eventually the gasoline inside burst into flames.

Engineers said the flexible fireproof



perched in a cut-out section of the wing of a dive-bomber, was filled with gasoline. Previously it had been "painted" with the fire-resistant liquid.

Enveloped in heavy fire-fighting clothing, two naval firemen attacked the tank with the torch. The fuel inside the rubber casing did not catch fire and examination later showed that the tank

coating can be applied to the fuel tanks with a painter's brush and takes only a few minutes to dry.

In other tests, coated aluminum tanks were subjected to 1,800-degree temperatures for 28 minutes without burning. Holes were burned in uncoated wartime tanks in less than 2 minutes.—*The New York Times*.

Radiation Tag

The US Navy has developed an identification tag that will tell when a soldier, sailor, or airman wearing it has been exposed to atomic radiation.

The metal identification discs will reveal how much radiation an individual has

absorbed, and medical men can tell at a glance which can be saved and which have been fatally exposed.

The identification tags change color when exposed to atomic radiation.—*The New York Times*.

GREAT BRITAIN

Immersion Suit

It is believed that many of the victims of the recent *Truculent* disaster escaped from the submarine and reached the surface alive, only to be lost in the darkness and strong tide. The new immersion

such a recurrence. The inflated suit, used with the Davis escape apparatus, not only keeps the wearer afloat but by insulating him from the elements protects him against exposure. On the right shoulder is



Left, immersion suit with the Davis escape apparatus. The suit is made of rubberized nylon. Right, testing the suit which is to be used in escaping from sunken subs.

suit now being gradually supplied to operational units of the submarine branch of the Royal Navy might help to prevent

a light which is switched on automatically by the action of the sea water.—*The Illustrated London News*.

SWITZERLAND

Stock Piles

Switzerland is taking systematic measures to safeguard her economy in a possible third World War, the Swiss Minister for Economic Affairs said recently. The minister told Parliament that stock piles of food, fuel, and industrial raw materials were being built up for another possible period of neutral isolation in a world at war.—*The New York Times*.

CZECHOSLOVAKIA

Arms Works

Skoda, the big Czech arms works, is making tanks and guns again under Russian orders. The arms are going to Russia and Bulgaria, not to the Czech Army. In addition, the Russians are opening uranium mines in Czechoslovakia, using Czech political prisoners, anti-communists, to mine the ore, all of which is being sent to Russia.—News report.

CANADA

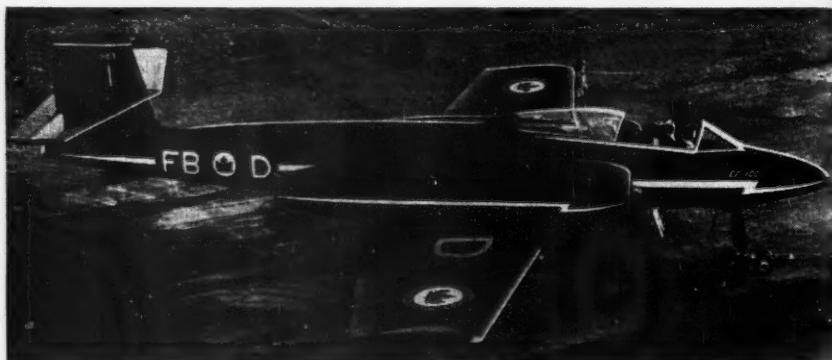
All-Weather Fighter

Developed to meet Canadian conditions in the defense of Canada, the Avro *CF-100* jet fighter is the first modern fighter plane to be entirely designed, engineered, and built in Canada. The showing made by the plane in its initial flights gives ground for confidence that Canada is in the lead as far as all-weather, long-range fighters are concerned.

Plans for the plane were formed in 1945 and begun in 1946. The prototype of an aircraft of an entirely new design has thus been produced in less than 4 years.

top of its cabin to the ground is 10 feet 7 inches. The two jet engines are mounted close to the aircraft's fuselage, and the plane is fitted with a tricycle undercarriage.

The new aircraft will complement the *F-86* single-engine jet fighter, which is being built for the RCAF by Canadair Limited of Montreal. The two aircraft will have separate tasks. Whereas the *F-86* is intended to perform as a single-seater day fighter, with corresponding characteristics of high speed and rate of



The Avro *CF-100* twin-jet fighter, above, is the first jet fighter entirely designed and produced in Canada. It is an all-weather, long-range fighter.

At present, the *CF-100* is equipped with Rolls-Royce Avon engines. Eventually, these will be replaced by the Avro Orenda engine which is of Canadian design. These latter engines will produce even more power than those now in use.

The *CF-100* has been designed to meet specifications laid down by the Royal Canadian Air Force, which considered a long-range, all-weather jet fighter necessary for Canadian air-defense requirements. The aircraft carries a pilot and radio-navigator.

The *CF-100* is 52½ feet long, with a wing span of 52 feet; its height from the

climb, the *CF-100* has been produced primarily for interception at long distances from base and in adverse weather conditions.

To permit the new plane to operate in this way and without the same degree of ground control requires navigational aids beyond those that could be carried by a single-seater interceptor. Great power is necessary to enable the aircraft to produce the high speed required by modern aerial warfare, and at the same time to allow it to carry all the necessary equipment, plus the heavy armament of fighter aircraft.—Department of National Defense, Canada.

GERMANY

Siegfried Line

The French Military Government in Rhineland-Pfalz began demolishing the Siegfried Line in 1946. Since then, over 5,000 of the 10,000 bunkers in the area have been blown up, and 200 fortresses and 60 miles of dragon's teeth tank traps

have so far been killed and 170 injured. More than 4,000,000 pounds of blasting powder have been used, costing 20,000,000 *Deutschmarks*, or about 5,000,000 dollars. The steel turrets of the bunkers had to be cut away with acetylene torches.



The work of demolishing the Siegfried Line is nearly complete. Above, blowing up one of the few remaining bunkers near Obersinten, in the French Occupied Zone.

have been destroyed. In addition, vast mine areas have been cleared. German demolition crews, once numbering 5,000, have now been reduced to 100.

Thirty-six (including a French officer)

The steel scrap is sent to France. Farmers have now been allowed to return, and, in addition, many homeless families have joined them; some find temporary shelter in the remaining bunkers.—*The Sphere*.

LIBERIA

Army Adviser

The President of Liberia recently requested the United States to supply a military adviser to Liberia—at Liberian expense—to train her army.

Sporadic violence has occurred recently as a result of labor unrest.

Noting that Liberia was "vulnerable to foreign doctrines" in her present stage of development, the President said that Liberia also desired to purchase American arms and equipment.—*The New York Times*.

INDIA

Defense Budget

India's Finance Minister, when presenting his annual budget to Parliament recently, announced that half of the nation's new budget would be spent on defense. The defense expenditure will amount to the equivalent of \$344,000,000 of an estimated revenue of \$694,000,000. The increased expenditure on defense is because of the situation in Kashmir, "which has not shown anticipated improvement."

Referring to Indian-Pakistani relations, the finance minister said: "Trade with Pakistan is virtually at a standstill." He could not foresee the normal resumption of trade between the two countries unless Pakistan revised her exchange rate to fit in with prevailing economic conditions.

The minister said he considered that India needed foreign capital "not merely for supplementing our own resources but for the purposes of instilling a state of confidence in our own investors."

Revenue for next year is estimated at the equivalent of \$694,000,000 and expenditure at \$674,000,000, leaving a surplus of \$20,000,000. The only reduction in the defense expenditure contemplated for next year is a small cut of about \$4,000,000.—*The New York Times*.

SOUTH AFRICA

Military Academy

South Africa is to establish a Military Academy at Voortrekkerhoogte (Pretoria) on similar though not identical lines to Sandhurst in England and West Point in the United States. Although the general system of training will be much the same as at the big overseas military institutions, the South African Military Academy will be adapted to meet South African conditions. It will offer youths a 4-year course leading to a degree.—*Royal Air Force Quarterly*, Great Britain.

USSR

Air Power

The Soviet Union is rapidly expanding Aeroflot, its civil aviation organization, according to the latest report of the Committee for Study of European Questions.

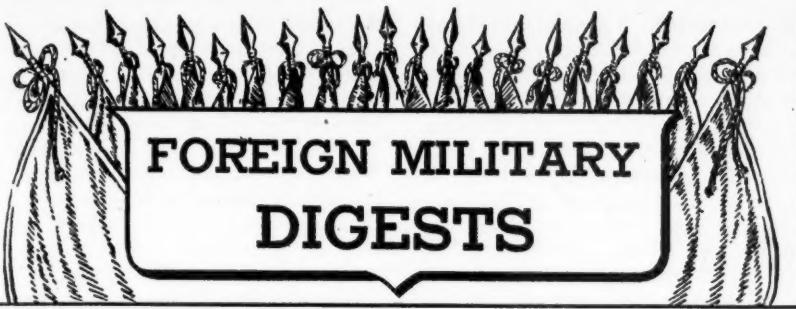
Already, the Aeroflot network covers more than 50,000 miles, stretching from Finland to Albania and across Europe and Asia to Siberia and the Bering Straits. Ninety-six landing fields have been built to assure efficient military and commercial communication throughout the entire communist bloc of nations.

According to information now available, aircraft production in the Soviet Union last year totaled between 36,000 and 42,000 planes, of which 12,000 were military. The military planes were said to include 5,000 fighters, most of them jet-propelled; 5,000 to 6,000 medium and heavy bombers, of which one-third to one-half were jets, plus 2,000 of other types.

Of the civilian craft, a great part went to building up Aeroflot. The report contrasts these figures with the 120 planes which, it says, were added to the entire American commercial air fleet last year.

Aeroflot serves the Soviet Union and its allies in three ways. Commercially, it carries gold, funds, and many kinds of goods. Politically, it carries agents—civilian agitators, Orthodox or Moslem priests—who are transported to carry on propaganda actions in the Middle East, Burma, and Pakistan.

Militarily, Aeroflot has become the "life artery" of the communist powers. The Soviet military leaders have long foreseen that in wartime Soviet Armies in Europe and Asia would have to fight independently, "each leaning on different industrial areas," and that a powerful, well-organized system of air liaison would thus become "indispensable."—*The New York Times*.



FOREIGN MILITARY DIGESTS

The Soviet Armed Forces

Digested by the **MILITARY REVIEW** from an article by Major General Richard Hilton
in the "Journal of the Royal United Service Institution" (Great Britain) November 1949.

Defense Matters

THOSE responsible for war preparedness in the Soviet Union enjoy several advantages over the staffs of other nations in their approach to the problem.

First, they are entirely free from all "mental shackles of the past" to an extent which cannot possibly apply to fighting services with venerable traditions. Most of us know cases where some logical reform has been delayed, or has only been applied in a watered-down form, because a completely ruthless application of logic would have offended against service tradition. Not so the Soviet armed forces. With them no traditional fads or private susceptibilities of the services are permitted to stand in the way of logical progress, and a ruthless application of the best weapon for each job regardless of any vested interests.

Second, they have the enormous advantage of being able to regard the entire Soviet Union as one vast war machine. With them, this is no mere theoretical conception of how a nation *ought* to be organized for war. Every social or economic activity, even in peacetime, is subservient to the requirements of war.

Third, this logical and ruthless alignment of everything on a war footing under

strong centralized control has brought about an integration of the three fighting services, in strategic conception if not in outward form, far closer than has been achieved by any other nation.

If the impossible were to happen—if one could persuade a senior Soviet officer to define to you his conception of the fighting forces of his country—he would, I feel sure, think of *four* distinct elements in the Soviet war machine. These four would be:—

1. *The Armed Forces*—regarded and used as one weapon.

2. *The "Rear"*—the whole nation or "Home Front," organized as one industrial and agricultural and man-producing machine for the maintenance of the armed forces.

3. *The MVD*—the essential security police force to keep the "Home Front" up to the mark, to prevent sabotage, fifth column activities, idleness, or any other waste or diversion of war effort.

4. *Fifth Column*—subversive activities of all kinds abroad.

It is important, I think, to realize that the Soviet leaders have got this much broader conception of what constitutes a war organization. They would no more think of planning a war without giving

full consideration to these four items than an air-minded soldier of today would start planning military operations without giving full consideration to the air.

The importance attached to full development of the "Rear" can be judged by the stream of official propaganda in the papers, on the radio, and on the screen. In spite of several "Five Year Plans" and ruthless slave-driving by the MVD, this particular item in Soviet war preparedness is still their weak point. It may not be so for long, because tremendous efforts are being made and progress is visible; but they have some way to go yet.

As to Fifth Columns, these enter into Soviet calculations just as much as do tanks, artillery, submarines, or any other recognized implement of war.

The sinister MVD is the king-pin of the entire Soviet system. Without it, the whole thing would collapse like a pack of cards. It is an army superimposed on the ordinary army, composed of carefully picked officers and men who undergo longer and more efficient military training than the ordinary run of soldiers, and who enjoy many privileges above the common herd. It is a complete fighting force of all arms—its own tanks, artillery, etc., and it is organized partially into its own mobile divisions. Above all, it enjoys the services of an intelligence system, thanks to which there is little that goes on within Soviet territory (or even abroad) without the MVD knowing about it. It gets its results by terror. There is no doubt whatever regarding the effectiveness of this terror and the complete grip which it gives the MVD over the entire life and activities of the nation, not excluding the armed forces themselves. As a sideline, the MVD runs the slave-labor camps and the munition factories and mines which are worked by such labor. They also man the fire services.

The existence of this force absolves

the armed forces proper of much of the onus of having to act "in aid of the civil power" against open or clandestine sedition. The effect of this is to keep relations between the armed forces and the civil population cordial. While the MVD is hated and dreaded by the people, the armed forces themselves are identified very closely with the civil population. Every effort of propaganda is made to foster popular pride in "our" Red Army, Red Air Force, and Red Fleet. A strong propaganda drive is directed toward the notion of brotherhood between Red Army men (and their comrades in the other services) and the workmen and peasants who form the home front.

This relationship has obvious advantages, but there are also certain drawbacks. In a community such as the Soviet Union, with its 16 (nominally autonomous) states and its enormous variety of nationalities and languages, care is necessary to prevent regional patriotism from creeping into this laudable popular pride in the armed forces.

Another disadvantage of identifying the armed forces closely with the people is that the armed forces, like the people, have to be placed under constant political surveillance. The old system of appointing a "political officer" to every unit of the Army or ship of the Navy has *officially* been abolished. But, as so often happens in a propaganda-ridden country, it is one think to abolish on paper but quite another thing in fact. The "political officers" may not be called so any more. But they are there just the same!

Inter-Relationships

In spite of wearing distinctive uniforms and being named "Red Army," "Red Air Force" and "Red Fleet," the three fighting Services are united to a far greater extent than I have seen anywhere else.

The predominant partner, without

doubt, is the Army—naturally, in view of the vast territories and continental situation. The Red Army exists to win any war by large-scale land operations. The other two exist to help the Army in its task. That is undoubtedly still their primary function. Whether it is still their sole function or whether they are starting to study and develop a separate "air strategy" and/or a separate "naval strategy" remains to be seen.

The Army and Air Force

There is a Ministry of the Armed Forces, but each of the three is self-running to a limited extent. Connection between the Army and Air Force is very close. Though the latter wears a distinctive uniform, it is not nearly as distinctive as that of the Navy, in fact, hardly more so than that of the artillery or tanks. It would not be far wrong to say that, although the Air Force is not integrally part of the Army to quite the same extent as the old Royal Flying Corps used to be part of the British Army, yet it is much more intimately connected with the land forces than is the Air Force of any other nation today.

Until recently, the Air Force was certainly regarded exclusively as a tactical weapon of the land war, and it was so used in 1941-1945. I have heard propaganda claims made that the Russians were the first to attack Berlin by night bombing and that most of the damage was due to them! Whatever the exact truth may have been, strategic bombardment played little if any part in their use of air power. They possessed a formation called the long range group, but even this was used to assist the land war by attacking the lines of communication of the German armies. It only formed a very small portion of the total Air Forces. The great bulk of that service was equipped with aircraft specifically designed for participation in land battles. They firmly believed that the correct use

of air power was almost 100 percent direct participation in the land battle, and who can claim, in view of their successes in land fighting, that they were wrong?

There is still undoubtedly a very strong and influential school of thought which adhered strictly to this notion of the use of air power. There may also be an opposing school of thought (headed perhaps by Marshal Stalin's son) who advocate the development of a strong strategic bomber force and the pursuit of an independent air strategy. Color has been lent to this belief by the recent appearances of heavy bombers at Red Square parades. I would like to suggest that what we were shown "in the shop window" in Moscow may be a very different thing to what is being prepared on a much vaster scale far out of sight of foreign eyes in the center of Siberia.

Before leaving the Air Force, it may be well to mention the activities of DOSAV—an officially sponsored society for co-operation with the Air Force. Under the auspices of this society, innumerable light airplane clubs all over the Soviet Union are carrying out elementary flying training of the younger generation, both male and female. They have not the same ideas that we have—that flying is something only to be undertaken by carefully picked supermen who have passed through a complicated medical test. It is almost as easy for a village youth or maiden to learn to fly as it is in other countries to learn to drive a truck. Consequently, they are able to turn out elementary pilots almost by the million.

Admittedly, this training is very elementary indeed, and a great deal more would have to be done to turn any of these novices into pilots of jet fighters or heavy bombers. Not much is required, however, to turn them into quite useful tactical bombers for the land war, or to employ them in several other forms of army co-operation. It is a factor of some importance.

I think, that the whole nation is being made "air-minded," even to this limited but very practical extent. We must remember that the Soviet authorities suffer under no inhibitions against the adoption of a given tactical method of war merely on the grounds that it would cost them immense casualties.

The Red Fleet

Turning next to the Navy, this has always been, and still is, the Cinderella of the Soviet fighting forces. Traditionally, the Russians have never been "deep water" sailors. They suffer, among other disadvantages, from their geographical need to maintain, not one great fighting fleet, but several little separate ones. Thus, they have to keep up the White Sea, Baltic, Black Sea, and Far Eastern Fleets, and the Caspian Flotilla.

I do not know to what extent there may be interchange of personnel and ideas between these, but it can hardly be as easy to arrange as between the various parts of the Royal Navy.

It does not seem likely that the Soviet government will build an oceanic battle fleet against the Western Powers or aspire to surface supremacy on the oceans. It is, however, quite possible that they may aim at blockading the ocean routes by submarine and air attacks on merchant shipping on a scale more intense even than that achieved by Germany in either of her wars. They have at their disposal the services of many German scientists and technicians, and perhaps German naval officers also, experts in submarine war. Giving them the credit of having studied the Battle of the Atlantic very closely, it seems only common sense to assume that their combined strategy may aim at a seizure of certain ports on the Atlantic by the Red Army to enable submarines and aircraft to operate effectively across the western approaches to Great Britain. This

strategy has nearly succeeded twice in our history. They may well think a third time will be lucky.

Apart from this venture into separate naval strategy, the remaining activities of the Red Fleet are likely to be limited to operations in coastal waters or narrow seas in very close co-operation with the other services. This might include getting surface command of the Baltic or Black Seas to facilitate an offensive move of the Red Army across one or the other of these seas.

Scientific Development

The chief point to remember here is that the Kremlin has at its disposal the technical services of many German scientists and experts. We can be very sure that they are exploiting this advantage to the full. We must also remember that they have the entire industrial resources of the Soviet Union geared, as a first priority, to warlike production. Third, they are entirely free from scruples against the use of any new weapon on grounds of humanity or any consideration for their own people. Fortunately there are two compensating disadvantages.

The first of these is a lack of technically educated Soviet citizens in sufficient quantities to manipulate highly complicated scientific weapons in decisive numbers. I will try to show what I mean by an example from artillery technique. As all gunners and many non-gunners know, it is not sufficient to put into the field vast numbers of powerful guns and a great mass of ammunition. You must also have quite a complicated technical organization for connecting those guns with their targets by survey or other semi-scientific methods. This demands a large staff of junior technicians of sufficient mathematical ability to work out the relevant sums. These brainy young men are needed in huge numbers to deploy artillery or any

other scientific weapon in war-winning quantities. It is just this very stratum of Soviet society which is most lacking—so much so that in the recent War they were forced, on account of this weakness, to deploy their artillery masses in ways that we should call "bow and arrow." It worked, but only at the expense of heavy losses among artillerymen. What is true of artillery is true of any other scientific innovation, so there is some hope that the lack of junior technicians may hinder deployment of such weapons on a grand scale.

Their second disadvantage is the all-pervading suspicion to be found everywhere in Russia. Nobody trusts anybody else. So, even if some decisive new weapon is evolved, their exaggerated sense of security may prevent them from letting sufficient people into the secret so as to deploy the new weapon in decisive numbers.

Turning now to the weapons and equipment actually in the hands of the troops, it is sufficient to say that these are, on the whole, robust, practical, and up-to-date. Weapons generally are better than transport. Maintenance of the latter has improved considerably since I first saw parts of the Soviet Army on the road. There was certainly room for improvement, and there still is. The Russian, on the whole, is definitely not a good mechanician, nor is he sympathetic to his machine.

Discipline, Morale, Welfare

Discipline in the Red Army, as might be expected of their ideological background, is very different from our own. For all that, it is most effective. It seems to be based on two rather conflicting ideas, i.e., comradeship (of the communist variety) when off duty, combined with a more than Prussian ferocity in all official dealings between one rank and another. You have the curious phenomenon of

criticism which manifests itself in articles written to the papers by junior ranks, including NCOs and privates, condemning in very forceful terms anything which they consider to be lax or remiss on the part of their commanding officers. It is common, also, to see groups of young soldiers gathering around an officer or NCO and arguing with him in a most friendly but off-hand manner.

On the other hand, there is no other service in the world, I should think, where minor differences in rank count for so much. For example, at a conference whose presiding officer is a full colonel, it would be contrary to etiquette for any lieutenant colonel to express an opinion unless he was called upon to do so, even if he happened to be the only expert on the subject under discussion. When a senior officer is giving orders to a junior officer, it is quite normal for him to adopt a special "parade ground manner"—a ferocious and bullying attitude.

Officers seem far more callous of their men's comfort and welfare than is the case with us. I came across many instances of this. They are also far from punctilious in returning the salute of their juniors. The saluted often ignores the saluter's existence altogether, or else looks at him as though he were a bit of dirt. But this curious behavior does not seem to be taken amiss. Both discipline and morale are undoubtedly very good throughout most of the Red Army. Of course, there are bad units; a few of the units in the Soviet Zone of Germany were very bad indeed. But it is fair to say, I think, that they were the exception and not the rule. Dress and general smartness in demeanor of all ranks, at any rate near Moscow, compares favorably with that of most conscript armies of the Western nations today.

Officer Class

As is only to be expected of a propa-

ganda-ridden communist state, theoretically the officer class is in no way distinct from the rest. In reality, it is very distinct. Selection, not only for junior officer ranks but also for NCOs of the permanent cadre of instructors, is based primarily upon education. Youths who have reached certain advanced standards in the universal curriculum of the state schools commence their period of military training earlier than the general mass of their contemporaries, so that by the time of the general call-up the "brighter boys" are ready to fill vacancies in the junior officer or NCO training cadres.

This would be fair enough if everybody had an equal chance of attaining to this higher standard of education. Actually, there is a great deal of nepotism and political bias, particularly the latter. Sons of officers, specially of the more senior officers, stand a far better chance than others. But, even more than the professional standing of the father, the political background comes very strongly into the picture. There was a time when the authorities realized that a good professional soldier need not necessarily be a fervent communist and vice versa. Those were the days when commanders were appointed because of their ability in war without worrying too much about their zeal for the party. That was why it was necessary in those days to have "political officers" in every unit to keep the honest fighting men on the rails.

As regards officers' privileges, these differ in no special way from those enjoyed by the whole official hierarchy. The only point to emphasize here is that communist talk about the abolition of class privilege in the Soviet Union is arrant nonsense.

On account of the leper-like isolation meted out to foreign attachés, it was harder to get an insight into the character and abilities of senior officers than it

would be in a civilized country. But in the course of a year in Potsdam and another in Moscow, it was possible to form a sort of composite representative picture of the average senior officer. The first impression that sticks out is that one and all of them are constantly in fear for their own futures. This impression is most marked, and I do not think that there can be any mistake about it. Many of the combatant generals (i.e., those who were not "political officers") gave me the feeling that, if left to their natural inclinations, they might have been quite decent normal beings with whom it would have been possible to find a lot in common. But they all have to act a part, and assume the character of mannerless boors.

Most of the successful wartime commanders that I met seem to have owed their success to a ruthless force of character and toughness of "drive" rather than to the profundity of their grasp of the higher art of war.

Coming to the middle ranks, the most common characteristics are lack of personal initiative and an almost inexhaustible capacity for hard work. The former trait—lack of initiative, might almost be called the Achilles' heel of Soviet fighting efficiency as a whole. It is undoubtedly caused by the Draconian penalties which attend failure, even when failure has been caused by a minor error of judgment. Nobody cares to take this risk. They all prefer, if possible, to pass the buck and get a ruling from higher up, even if this wastes time. I came upon many glaring instances of this.

We used to see quite a lot of the non-commissioned ranks in the Soviet Zone of Germany, e.g., by giving them lifts on the road, etc. I found the simple soldiers and junior NCOs most likeable chaps—far more so, in fact, than most of their officers. They were amazingly ignorant of the outer world, but showed no anti-foreign

feelings at all. Nor, in the Soviet Zone, had they any objections to talking freely on non-military subjects, provided that they were certain that they were not being observed. Most of them had the minds of peasants, and oriental peasants at that. I got the same feeling that I used to get when talking to primitive villagers in India. It was significant how many talked of a coming war with the West. They spoke of it without rancor or enthusiasm or any other strong feelings—in quite a matter-of-fact way, as of any other inevitable event, such as the snows of winter.

Summary

I have tried to give you my own general impressions of the Soviet Armed Forces—

their inter-Service set-up; their outlook on war and politics; their principal strong and weak points; and some of the characteristics of the troops, their leaders, and their equipment.

The general impression which I should like to leave with you is that of a formidable fighting machine, but one by no means free from very serious weaknesses. However good the actual fighting forces may be, their ability to sustain a long world war will depend on the economic state of the Soviet Union and on its people's enthusiasm for the war. In both these respects, the Soviet Union still has a long way to go. They know this as well as anyone and they are certainly not "marking time."

Aug 1950.

World War II shifted the balance of world power—economic, political, and military—to two major powers, the United States and Soviet Russia. As far as the United States is concerned, we have sometimes shown reluctance to accept our new role in world affairs, while the Communists have not only taken their role for granted, but have eagerly assumed that it is their opportunity to gain their Marxian Utopia—world Communism.

General Omar N. Bradley

Security might be likened to a double-edged sword. Laxity in application may give the enemy the scientific advantages necessary to achieve victory; too stringent regulations on the other hand, may prevent the continuous cross-fertilization of ideas so necessary to fruitful scientific effort with resulting slowing of progress and development so that we fall prey to an alert aggressor. The implications of atomic energy have made the need for security precautions apparent to all. In view of present international developments we shall continue to disseminate basic scientific knowledge widely, but increase protection of applied knowledge and technical information on equipment.

Major General Anthony C. McAuliffe

Insular Strategy

Translated and digested by the MILITARY REVIEW from an article by Captain Lepotier (French Navy) in "Revue de Defense Nationale" (France) July 1949.

THE air age, while bringing with it undreamed-of possibilities in transportation and action above the surface of the seas, does not diminish the role of naval forces. Most of the time, naval forces alone will be able to exploit the sea lanes to the maximum. Without the use of the sea lanes, the air forces of belligerent countries that do not produce oil are soon paralyzed by lack of fuel.

Technical advances have modified methods of conquest and ways of employing naval forces, but the basic principle of geographic location has not changed. It was just as important for General Eisenhower to have powerful naval forces at his disposal for getting his expeditionary force across the English Channel as it was for Caesar.

Modern wars, which now include the entire globe, automatically have become insular wars. A map of the world shows what little space the inhabited lands of the globe occupy in comparison to the vast oceans and seas which surround or divide them.

The insularity of inter-continental warfare is reflected in the conduct of operations. Every island, large or small, is a valuable possession which can serve as a springboard or shelter for air-naval forces. In the final analysis, air-naval forces are assigned the mission of bringing the combined effort of all arms to bear on the home soil of the enemy.

Control of the Seas

The obvious connection between insular strategy and control of the seas has long been known.

By June 1944, the decisive role that British insularity, followed by air-naval power, had played in the history of Europe and

the world, had been illustrated by more than 30 Channel crossings.

At an early date, the English realized the great value of their insular position and also how their control of the seas would permit them to occupy other islands of the globe. Such islands could be used either as relay points on the strategic commercial routes, or as outposts in conflicts against continental powers.

The thought doubtless arises in the mind of the reader that long-range missiles and airplanes have outmoded the insular concept. This is not the case, however. The German airborne assault on Crete in World War II, which nearly ended in failure, is usually cited in this connection. Crete was only an event which confirmed the fact that sea power ought to be air-naval power, and that any insular operation, to succeed, should be a perfectly balanced combination of ground, air, and naval forces. Malta played its part as an insular outpost despite continuous attacks by planes based on nearby enemy coasts.

The Pacific Theater offers us the best examples of insular strategy. This is true because the Pacific Ocean covers nearly half the globe.

The islands of the Pacific fall into two different topographical categories. In the north, the western edge, and the southwest, there are many mountainous islands. These include the Aleutians, the Kurils, Japan itself, the Ryukyus, the Bonins, the Marianas, the Philippines, New Guinea, and the Solomons. On the other hand, in the western tropical half of the Pacific Ocean, there are thousands of scattered islands grouped into archipelagos, created by volcanic upheavals and girded by coral reefs. The size of the group depends on the volume of the mass that has emerged from

the water, the age of the coral portion, and the action of the winds.

From the standpoint of strategy, the importance of each island depends on its geographic position, whether or not it has a sheltered anchorage for naval forces, and the availability of areas that can be converted into airplane runways.

The most valuable islands are those which have a sheltered expanse of water capable of harboring hundreds of vessels of all sizes, plus sufficient room to maneuver in case of air attacks. The islands must also have several airfields, large enough to permit several hundred combat and reconnaissance planes to take off rapidly. Islands such as these can be developed into main operational bases.

Other islands close to a principal base, although possessing no large-scale port, may serve as patrol outposts, provide runways for patrol planes, and furnish minor anchorages for seaplanes and air-naval rescue craft. Lastly, certain small islands can serve only as relay runways, such as the famous "stationary aircraft carrier" at French Frigate Shoals, between Pearl Harbor and Midway.

The best naval bases are found in the mountainous islands. The bases may be surrounded by small islands, such as at Rabaul, or by rocks, as at Guam and the Palaus. Or they may be bordered by deep indentations in the shore line, as in the case of the roadsteads and bays of the Philippines and Japan. The mountains of these islands, however, restrict the construction of landing fields.

Among the volcanic archipelagos, the best naval base is Pearl Harbor. Its harbor area, however, has become too small for the dispersal of a large fleet. Pago Pago in the Samoas is another excellent base.

The principal atolls whose lagoons are adequate for large fleets are Tarawa and Makin in the Gilberts; Kwajalein, Majuro, Enewetok, and Bikini in the Marshall Is-

lands; and Ulithi near the Palaus. It is usually impossible to construct more than one landing strip on the dunes of coral sand which border the lagoons. Such a strip usually runs in one direction only. However, this is not a matter of great consequence, since the trade winds blow constantly from one direction.

Japanese Strategy

The Pacific phase of World War II took place in the completely insular setting described above. Never before had the problem of control of the seas dominated so completely the actions of the two combatants.

The thing that conclusively demonstrates the importance of control of the seas is that Japan, on the occasion of each of her initial attacks, automatically employed surprise attacks on the naval forces of her adversaries—Yalou, 17 September 1894; Port Arthur, 9 February 1904; Pearl Harbor, 7 December 1941. Japan's amphibious attacks, both continental and insular, which followed these initial thrusts, constituted only an immediate exploitation of a temporary control of the seas, obtained by confusion produced in the sea power of her enemies.

Three times, the Japanese strategic concept was the same and was carried out with vigor. Tactical methods varied, naturally, with the era: rapid-fire artillery at Yalou, surface torpedo boats at Port Arthur, torpedo and bombing planes at Pearl Harbor. But the strategic idea is as old as humanity itself.

In the Japanese application of this method, it is illogical to claim superiority of the torpedo boat or the plane over the battleship. In this case, the superiority manifested is simply that of surprise.

On each occasion, Japan was sure of the results of her surprise attack, and she had prepared for immediate exploitation of initial success. In 1904, the advance guard of the expeditionary corps landed at Che-

Mulpo, while the torpedo boats headed for the Russian squadron. In 1941, the landing forces to attack the Philippines and Malacca were on the way when Admiral Nagumo released his planes against Pearl Harbor. The annihilation of Great Britain's Singapore squadron a few days later was the application of the same principle. It is of little consequence that this was obtained by immediate air concentration. In any case, the fate of the two British ships was sealed in advance, in view of the superiority of Japan's air-naval forces after Pearl Harbor.

The annihilation of the Anglo-Dutch-American forces in the vicinity of Java showed this again a short time later.

Covered and carried by her air-naval power, which made her mistress of the seas, Japanese ground and air forces were immediately able to conquer island after island. In 3 months, Japan had occupied the vital insular space which constituted her war objective.

The success of this first phase was the reward of faultless strategy. Its success was assured because it was a repetition of similar, preceding operations which were successful. The second part of this strategy was much more difficult to execute successfully: the retention of the conquered archipelagos.

The Second Phase

Even though we may see clearly how Japan had prepared the first phase of the Pacific War, we still wonder how she expected to develop the second phase.

Naturally, the European nations were too intensely occupied in the war against Germany to be able to react for some time. It seems incredible, however, that the Japanese government believed that, after Pearl Harbor, the Americans would just accept what had happened and forget about it, as the Russians had done after Tsushima in 1905. Even if we make allowance for the lack of Japanese psycho-

logical insight, we still wonder how Japan could ever have regarded Russia under the Tsar and the United States under Roosevelt as equal from the standpoint of moral, financial, political, industrial, and military resources.

Taking advantage of her temporary control of the seas, Japan might reasonably have been expected to attempt a landing on the North American Continent and the conquest of the United States by the employment of armored forces.

What England had never been able to do at the beginning of a war against a continental aggressor, due to lack of ground forces; and what Napoleon and Hitler had not been able to do against England, due to lack of naval power, Japan was in a position to consider immediately following Pearl Harbor. At that time, Japan possessed naval, ground, and air forces which were momentarily superior to those of her unprepared adversary. Instead of dispersing her powerful forces in China and among the thousands of Pacific Islands, she should have landed her forces on the coast of California and repeated the successes of the Manchurian campaign of 1905. If this had been done, all of the Pacific islands would have fallen more surely into Japan's possession than by direct occupation.

No other conquest could have insured a Japanese future for Greater Asia, the Hawaiian Islands, or Australia. As long as the United States remained untouched, it was possible for the Americans to construct an air-naval force far faster than the Japanese. Therefore, regaining control of the seas, which was to overthrow the Japanese insular empire, was only a question of time.

Short of a decisive occupation of the United States homeland, there was an old naval stratagem which would have delayed the American counteroffensive for a long time. It would have consisted of destroying what remained of the air-naval power of



The War in the Pacific offers many examples of insular strategy and the vital role of naval-air power. Above, 7th Fleet planes fly over surface forces in Lingayen Gulf during the invasion of Luzon, 10 December 1944. Below, the 158th Infantry landing on Noemfoor Island, 2 August 1944, in one of the many island-hopping attacks.—US Army photos.



the United States after Pearl Harbor; destroying naval repair facilities, especially on the American West Coast; and destroying the Panama Canal.

The English fleet always operated in this manner against the Spanish, Dutch, French, and German fleets. Even after its most brilliant naval victories, the British fleet did not rest as long as any portion of the enemy fleet was afloat or as long as the naval shipyards were attempting to reconstruct the vanquished fleets.

Control of the seas being just as necessary a condition for the preservation of Greater Insular Asia as for its establishment, the American air-naval forces should have remained the first objective of the Japanese.

Abandonment of this elementary strategy by the Japanese is all the more incomprehensible in view of the fact that their own recent history provided a magnificent example of the way it could be applied. After the "Pearl Harbor" of 9 February 1904, Admiral Togo did not allow the Russian naval forces to escape. He had tried in every way possible to get at the Russians again in their bases, to bottle them up there, or to block them by mine fields. He attacked them each time they attempted to come out, until they were destroyed. Knowing that the enemy was constructing new naval forces beyond his reach, he had but one aim—to engage them with all his forces as soon as they should appear in the theater of operations. That took place at Tsushima.

It is hardly believable that Togo's successors of 1941-1945, after having religiously imitated the opening portion of Togo's attack, suddenly forgot the lessons they had learned. They showed no further interest in what became of their adversary's naval forces. They knew the Americans possessed good facilities for the rapid construction and repair of ships. The Japanese not only neglected the rebuilding of America's air-naval power; they turned

their backs on it and continued insular operations of questionable worth without protecting themselves against possible attack by hostile forces.

We have said that insular conquest is the natural exploitations of control of the seas. Still, steps must be taken to prevent control of the seas from being threatened. If a nation gives no thought to enemy naval forces, they may attack unexpectedly, if only by raids. Today, carrier-borne aviation provides a valuable method of conducting naval raids. Planes may radiate out in a 300-mile circle from their floating airfield and can deal a surprise blow without revealing the position of the aircraft carrier. Planes also can warn their own carrier of the approach of superior forces.

American Counteroffensive

On 31 January 1942, Admiral William F. Halsey, commanding 2 carriers, 5 cruisers, and 10 torpedo boats, conducted the first American raid against the atolls of the Marshall and the Gilbert Islands. Wotje, Maleolap, Kwajalein, Roe, Jaluit, Makin, and Tarawa were attacked. On 20 February, he directed a raid against Rabaul. On the 24th, Wake and Marcus were attacked. On 10 March, Salamaua and Lae in New Guinea were hit. On 18 April, General James H. Doolittle's planes took off from the *Hornet* to fly over Tokyo. On 4 May, an air-naval raid was launched against Tulagi.

Thus, the Americans resumed the initiative, if not in decisive operations, at least by harassing Japanese insular outposts.

The Japanese fleet still did not react except by aiding in the conquest of islands and by strategically dispersing its forces from the Indian Ocean to the Bering Sea. The result of this dispersal was soon apparent. Although the American air-naval forces, on the whole, were inferior to the combined Japanese forces, they succeeded in surprising the scattered parts of the

Japanese air-naval forces. In the Coral Sea, the unprotected Japanese carrier, *Shoho*, was surprised and sunk. At Midway, a concentration of the three available American carriers succeeded in sinking the Japanese carriers, *Akagi*, *Kaga*, *Hiryu*, and *Soryu*, which were surprised as they were attacking the island.

Midway was the first serious Japanese defeat. Had the operation been conceived as a device to force the American vessels which had escaped damage at Pearl Harbor to fight the concentrated Japanese forces, instead of an attempt to seize possession of Midway, the result may have been quite different.

Moreover, the battle of Midway revealed the technical and tactical superiority of American carrier-borne aviation over the Japanese. This anticipated a reversal of strength, long before the Americans acquired numerical superiority.

This fact, coupled with Japanese geographical dispersion, permitted the Americans to pass to a second phase in their counteroffensive. This was the American offensive at the end of the Japanese line of sea communications at Guadalcanal, within reach of the Allied bases in Australia, New Caledonia, and the New Hebrides. There the first fight to the finish on an insular front was opened on the land and sea, and in the air. It is useless to contemplate which service dominated this battle. In the long run, it was the combined efforts of all services that brought success.

A naval force made the first night landing. Only surface naval forces were capable of carrying to Guadalcanal the reinforcements in men and matériel needed to win the decision on the ground and in the air. Fear of air attacks, against which the ships were poorly armed, led both sides to engage naval forces only at night. The struggle was conducted on the seas at pointblank range with guns and torpedoes. In the daytime, the battle was fought at

long range by planes, when they succeeded in finding one another. On the land, the battle was fought both day and night, with air support during the day and naval support at night.

On this front, the Japanese continued to make the same mistakes. They continued to direct their air-naval forces against geographical objectives instead of attacking the air-naval forces of their adversary. They supplied reinforcements in small numbers, transporting them on board slow convoys which carried the troops only as passengers. When the convoys were attacked, the results were disastrous. During the day, they were within range of Allied aviation. At night, the convoys encountered Allied naval forces.

When the Japanese finally decided to send larger forces as reinforcements, it was too late. The Americans had succeeded in concentrating forces which were just as powerful and much better equipped. The Americans were beginning to be able to operate in the daytime, in spite of the Japanese air attacks. From then on, the Japanese lost local control of the seas, and there was no longer any doubt about the outcome of the battle. On 8 February 1943, 39 years to the day after Port Arthur, the Japanese lost their first insular outpost to the Americans.

The name of Guadalcanal, up to that time, was unknown to most of the world. Its name has now become historic. Guadalcanal was the point where the dispersed Japanese forces and their tenuous lines of communications permitted the Allied counterattack to strike its first effective blow.

From this point on, the Japanese were forced into prolonged retreat. No island fortress is able to hold out against an air-naval concentration which is not opposed by superior forces of the same type.

The war in Western Europe had already shown the weakness of extensive fortified

lines. How could the Japanese strategists have believed that a line of fortified islands would be an obstacle when these different bastions were separated by gaps hundreds of miles wide, through which fast air-naval forces were able to penetrate almost at will?

American Strategy

In contrast, American strategy was skillfully conducted in accordance with the forces available and the errors of the enemy. The Americans learned valuable tactical lessons from the hard battles around Guadalcanal, and they then cautiously exploited this first success. As soon as they acquired sufficient forces, they made long bounds along the direct route of the atolls, stopping only at island objectives which could serve as principal bases for a new bound forward.

In November, the two principal atolls of the Gilbert Islands, Tarawa and Makin, were captured. From there, the aerial assault against future objectives in the Marshall Islands was intensified. These islands were selected from among the many atolls capable of providing main air-naval bases. Kwajalein, Majuro, and Eniwetok in the Marshall Islands were occupied later without too much difficulty.

The next objective was Saipan, the future springboard on the way to Japan and the Philippines. For the first time, the Japanese fleet, consisting mainly of carriers, attempted to resist. Japanese carrier planes operated at extreme range, counting on using the Saipan landing fields before the fields were captured. But it was much too late. Detected by radar, which gave the Americans time to get into the air, the Japanese planes were destroyed by the fighters of the new American carriers, and the Japanese Navy was unable to prevent Allied attacks on its own carriers.

The next step, prior to the invasion of the Philippines, was to seize the Palau

Islands and the large neighboring atoll of Ulithi.

In order not to stretch their communication lines too far, the Americans created a system of mobile bases and supply ships which could satisfy the needs of their large fleet in the theater. The principal locations of these mobile bases were the atolls of Majuro, Eniwetok, and Ulithi. The amphibious operation against Leyte in the heart of the Philippines was covered by all air-naval forces, with reconnaissance by planes and submarines. The Japanese took advantage of the aerial support insured by the land-based aircraft in the Philippines to attack with their naval fleet. In 3 years, the American fleet had acquired such superiority that this tardy Japanese gesture did not have a chance of being successful. The Japanese admirals knew this.

Drawing a few lessons from this great battle, without taking into account numerous factors which intervened, we could say that the Leyte operation was decided by the crushing victory of American carrier-borne aircraft over the Japanese planes based on 70 air fields in the Philippines. The Japanese should have fought this naval battle 2 years earlier, when they possessed numerical superiority. Because of their many mistakes, the Japanese became the victims in the insular war which they had perpetrated.

Future Strategy

Today, two great insular powers face one another from opposite sides of the globe. They are those of the North American island and the Eurasian island. These islands are bordered by immense bodies of water which have been arbitrarily divided into oceans—Pacific, Atlantic, Indian, Arctic, and Antarctic. We should add to these the Arabian and Saharan Deserts.

Three of these vast expanses, the two polar seas and the torrid ocean of sands, oppose the movement and supply of surface

forces. Only aircraft of great range are able to cross them without stopping. Thus, only raids of projectiles can be operated over them, and these are not decisive factors as yet. Only the Pacific, Atlantic, and Indian Oceans can serve as fully operational areas.

Therefore, the importance of the large islands which surround Eurasia cannot be too strongly emphasized. The British Isles, the North African island, the East African island, Ceylon, Sumatra, Borneo, the Philippines, Formosa, and Japan, will be the pawns in the insular strategy of the two great powers. Nothing comparable exists around the North American island, with the exception of Newfoundland and Cuba, which are much more intimately connected to the principal land mass.

Three islands, Greenland, Iceland, and Spitsbergen, mark the shortest sea route along the border of the Great Ice Barrier between the two great powers. Consequently, great emphasis is placed on these islands because of their strategic importance. Other large islands of the globe—South America, West Africa, South Africa, Madagascar, and Australia—are insular rear areas which will automatically serve the master of the seas. This should make

sufficiently clear the decisive role that air-naval forces will be called upon to play. Only air-naval forces are able to transport the other fighting forces to points where they can conduct sustained operations. Moreover, the latest weapons, such as the atomic bomb and self-propelled missiles, increase the radius of action of air-naval forces into the interior of the land areas.

Large vessels, surfacing suddenly off the American or Eurasian coasts, can release planes carrying atomic bombs or self-propelled missiles to the center of the North American or Eurasian islands. These planes have every chance of accurately hitting large-area objectives whose geographical location is correctly known. On the other hand, planes or missiles launched from a land area will have great difficulty in finding and striking the fast-moving, powerfully defended, naval vessels.

Although opinion about future warfare may not be unanimous, one thing is certain. The problems which face the world of tomorrow should be studied from the insular point of view and, therefore, from the air-naval point of view. This viewpoint dominates all strategic questions when one examines them on a global basis.

Health Discipline

Digested by the MILITARY REVIEW from an article by Lieutenant General Sir Neil Cantlie, Director General, British Army Medical Services, in the "United States Armed Forces Medical Journal," February 1950.

FIELD Marshal Montgomery in 1945 paid a remarkable tribute to the Royal Army Medical Corps when he wrote "to the Royal Army Medical Corps, whose contribution to victory has been beyond all calculation." These are impressive words addressed by one of our greatest generals to the Army Medical Services which comprise the Royal Army Medical Corps, the

Royal Army Dental Corps, and Queen Alexandra's Royal Army Nursing Corps. Never before have such glowing words been addressed by a British commander to army physicians, dentists, and nurses.

Field Marshal Montgomery stressed five main points in the contribution that the Army Medical Services had made: 1. forward surgery by the field surgical units;

2. blood transfusions and its availability in the forward units; 3. skilled nursing by Army nurses in forward areas; 4. penicillin and sulfonamides; and 5. air evacuation. These are all factors that have made the difference between life and death to the wounded man and they are all concerned with curative medicine.

As a further contribution to victory, a sixth point can be added. It is called health discipline and defined as measures that concern the preservation of health and the prevention of disease which are enforced by disciplinary means. These six points contributed to victory because they conserved man power, and the recovery of sick and wounded men in total war is of great importance to total man power. Since man power is ultimately a deciding factor in war, an efficient medical service has an important part to play.

Effect on Combat

The effective, and, at times, overwhelming part the medical services can play in war has been gradually recognized by military commanders in the field. This has been especially emphasized where the campaigns have been fought in countries with low standards of health. None more so than in the recent campaigns in Burma and the Pacific.

The campaign in Burma in 1942 showed the extent to which military operations could be dominated by malaria. In 1943, in Burma, the morbidity rate caused by malaria was as high as 450 cases per 1,000 per month in certain forward units in contact with the enemy, where active service conditions seriously interfered with antimalarial measures.

This may seem enormous at first, but remember that it is only 15 men out of a battalion of 1,000, reporting each day with malaria. Although such high rates were exceptional, rates of 200 to 250 per 1,000 per month were common among forward troops. The commanders of formations saw

their forces melting away and could do nothing to prevent it.

The accepted attitude was to lay the responsibility for health on the physicians' shoulders. The prevention of malaria was a physician's duty, almost a physician's fad, to which the fighting soldier paid little attention. His job was to fight and defeat the enemy. It was not appreciated that unless the battle against disease was fought and won first, there would be no troops to defeat the enemy.

The battalion or regimental medical officer did his best to persuade the troops to use mosquito nets when this was possible, and to smear on repellents when they were on patrol or sentry duty. The unit sanitary personnel used Paris green and oil on pools where mosquitoes bred, and drained away stagnant water. But essentially, it was a medical matter and no concern of the fighting soldier whose mind was taken up with tactical plans to defeat the enemy.

It is true that the unit commander was, by regulations, responsible for the health of his troops, but he relied on his medical officer to put any measures into effect. These were limited to what the commander thought could be adopted under the existing conditions of active service.

The campaigns in Burma and New Guinea quickly showed that combat was impossible when medical recommendations were overruled. Then came the experiments of Fairley in Australia. He proved that when one tablet of atabrine was taken daily it was impossible to get malaria. A man would never report sick with malaria, no matter how many times he was bitten by infected mosquitoes. When Fairley reported the success of his experiments to the American and Australian commanders in the Pacific, they were quick to grasp its importance.

Command Function

One commander said: "You doctors

think you can prevent malaria, but you can't. I can and I'm going to." By these words, "I am going to prevent malaria," the war in the Far East was revolutionized and victory was made possible. Prevention of malaria was taken out of the physician's hands and accepted by the staff. Commanders at once became responsible to assure that their soldiers did not acquire malaria, by seeing that the taking of atabrine was made a disciplinary matter. This was accomplished by requiring a daily message from commanders of regiments, brigades, and divisions to the effect that every man had taken his atabrine.

It was as simple as that, but it took a little time before the significance of the change of policy was realized. The morbidity rates for malaria dropped spectacularly. In India, which was a nonoperational area, in 2 years the malaria rate dropped from 248 to 34 per 1,000 per year. In West Africa, the rate dropped from 900 in 1941 to 90 per 1,000 per year in 1945.

Commanding officers of units were responsible if the morbidity rate for malaria exceeded a maximum figure, and one commander was relieved from duty for this reason. For the first time in history, a unit commander was considered incompetent to command because he had allowed his men to become ineffective because of disease. Antimalarial precautions such as the taking of atabrine, the use of DDT, and the provision of mosquito nets and veils, became measures as important or more important than the supply of ammunition. And it became common practice in assault landings to land antimalarial supplies at least as soon as the ammunition, because ammunition was useless unless soldiers were there to use it. A few hours of relaxed precaution, such as the failure of the supply of atabrine for 24 hours, would prove more dangerous than the failure to receive shells for the guns. As a result of the hard lessons of war, this new doctrine, the active responsibility

for the control of certain diseases, rested with the general staff. This is the doctrine of health discipline.

Tactical Aspects

This doctrine, and its corollary, the control of disease, opens up new tactical aspects of warfare. For example, if in a campaign one army has complete immunity from a particular disease because of its strict measures of health discipline, it could aim at forcing an enemy whose health measures were ineffective to fight in the most highly infected areas so that disease as well as bullets would lead to the defeat of the enemy. This occurred in Burma in 1945 when British and Indian troops were protected and the health discipline was of a high standard, while the Japanese Army was decimated by malaria.

We can, therefore, foresee that medical science may exercise an influence over the tactical aspects of a campaign in a country where endemic disease exists and where medical knowledge of one of the combatant forces has evolved a technique which is either unknown to or imperfectly used by the other. It follows that medical intelligence is of importance and may prove to be of great value in war. Medical intelligence means obtaining information of the diseases existing in other countries and the degree of medical knowledge that such countries possess.

Bacteriological Warfare

The conception of the mingling of military tactics and medical science leads me to say a word about bacteriological warfare. The bacteriologist is intimately concerned here with the actual means of destruction. We see him in the laboratory growing cultures with a view to spreading disease and death. Is this one of the prospects of advancing civilization? We as physicians have previously known no medical secrets between nations; medicine was international. There was no iron curtain

until the future menace of bacteriological warfare cast its shadow over us. Let us pray that as physicians we will never be asked to cause disease in or destroy our fellow beings. Our mission in life is to stamp out disease, not to cause it; to prolong life, not to shorten it.

The army medical services in war rise to a peak of importance that is sustained by the constant prospect of violent death in all its forms. The army physician becomes a savior of life and a healer of pain, while the efficiency of the medical services may be the personal concern of every soldier in the field. In the last War, as the tribute from Field Marshal Montgomery shows, our reputation has never stood so high. Our advice was accepted and enforced by commanders who wielded vast authority. It has always been the invariable experience that the lessons learned in the violence and tumult of war tend to become forgotten in the days of peace. The voice of the physician becomes a still, small voice, and a generation soon grows up which lacks the personal experience of the imminence of sudden mutilation or death.

Peacetime Efforts

It must be one of our great tasks in peace to keep alive this flame of health discipline, which was first kindled in the embers of war. We must not allow that great contribution to victory in the field to be cast aside and forgotten.

Human nature, being forgetful of the past, will have to be constantly reminded of the part we have to play. Our soldiers in peace do not die of malaria, or scrub typhus, or dysentery—diseases which may decimate armies in the field. We can only accomplish this task by constantly emphasizing the lessons of the past to the present and future generations. We must keep our officers aware of the problems of health discipline and we must do this by lectures and by health education, which

should be part of the syllabus of all combatant officers' training.

I hope this policy will bring home to our staff officers who are responsible for future planning, that the medical services must be called in at an early stage. Our medical intelligence must be fully developed and the importance of this branch of military medicine should be reemphasized. We must employ it with caution to avoid divulging secret information.

For example, when, in 1942, the invasion of a certain country was being planned in great secrecy, the director of medical services of the force was engaged in a survey of the malarial problems that might be encountered. Wishing to know the habits of all the endemic varieties of anopheline mosquitoes so that effective control measures could be planned, he asked the entomologist what he knew of the habits of *Anopheles "X."* The entomologist replied, "What on earth do you want to know that for? It only exists in a limited area in . . ." (mentioning the country where the invasion was to occur). The director of medical services had to draw in his horns pretty quickly to avoid a serious leak in the invasion plan.

Other Diseases

Health discipline must cover all those diseases that can be controlled by regulations enforced by authority. So far, malaria has been dealt with exclusively, but there are other diseases that the advance of medical science can add to this category. It would be rash to make predictions, but it is suggested that scrub typhus, which was met in Burma, with its 20 percent mortality, may shortly be controlled in the same way. Chloromycetin used prophylactically has been found to give favorable results. The active search for new antibiotics will no doubt produce new drugs which will unlock those doors

which are still shut. If a drug effective as a prophylactic against bacillary dysentery could be produced, then a standard of health discipline could be enforced that would do away with one of the scourges of armies in the past.

As for venereal disease, is it too much to hope that a drug may be discovered which when given prophylactically will prevent at least one of the venereal diseases?

One of the medical consultants in Burma, from his personal experience in the last War, laid the strongest emphasis on the necessity to shift our natural bias from curative to preventive medicine. He maintained that by multiplying the sanitary personnel in the forward areas and by intensive propaganda and health education we could attain a degree of health discipline that would materially reduce our hospital beds and hospital staffs. This is a point of view that merits serious thought and it is believed that greater efforts to inculcate health education, followed by effective measures of health discipline, would be sound.

Preventive Medicine

Finally, let us consider the measures of preventive medicine and health discipline that the soldier of future wars will be expected to undergo. He will be immunized against smallpox, the enteric group of fevers, tetanus, diphtheria, yellow fever, louse-borne typhus, and if necessary, cholera and plague. Tuberculosis may soon be added to this list. From the point of

view of health discipline, he will be protected against malaria and probably scrub typhus, and possibly at least one of the venereal diseases. Let us not forget the chemotherapeutic agents that each man may swallow if wounded.

We need not feel dissatisfied with the prospects of protection against disease afforded to our soldiers, but how much more satisfactory if a prophylactic drug effective against the dysenteries could be added to this list. Surely with the advances we can expect in antibiotics, we cannot discard this as impossible. In conclusion, there is a story of an eminent American thinker who was once asked how he would have made the world different if he had been God. He replied, "To begin with, I should have made health instead of disease."

In the absence of perfection such as this, one of the great tasks of military medicine must be to send the soldier to war protected from those diseases that can be prevented, and by the powers of health discipline effectively wielded by the supreme commander in the field. The importance of health discipline has been stressed because we cannot allow the lessons of the last War to be forgotten. When, for the first time in history, a combatant officer was considered unfit to command a unit on the grounds that he had allowed his men to become ineffective through disease, a new day in military medicine dawned. The clouds of forgetfulness must not be allowed to overshadow the brightness of that day.

We have been witnesses to the fact that in war, the medical service can not live solely by the aid of medical technicians, that its efficiency and operation now depend on the complex collaboration of numerous specialists in other fields, in accordance with a common plan.

Colonel Emanuel Marques Porto in "*Nação Armada*," (Brazil)

Soviet Artillery in the Berlin Operation

Translated and digested by the MILITARY REVIEW from an article in "Informations Militaires" (France) No. 140, 1949, taken from an article by Colonel General Kazakov in "Krasnaya Zvezda" (USSR) No. 108, 1946.

THE beginning of the Russian attack on Berlin, which was launched by forces on the west side of the Oder River, was preceded by an artillery preparation of a density that had never before been attained. The preparation was fired at night and was augmented by attack aviation.

On 1 March 1945, the Germans had 74 battalions of infantry, supported by 1,909 guns, on a front of 80 miles. By 14 April, they had concentrated 67 battalions and 2,220 guns on a front of 40 miles, roughly 55 guns per mile.

The artillery attack plan had been established during the second half of March. It called for an average of 402 guns per mile through the regroupment of artillery among the armies. Therefore, means for covering the entire depth of the range of the guns and for establishing a double barrage at the beginning of the attack to a depth of 1½ miles were available to the Russians. An initial 15 minute preparation was planned for the zone beyond the Zeelov hills, 4½ to 5 miles back of the German front.

The preparation began at 0500 on 16 April. At 0520, the vertical beams of searchlights gave the signal for the infantry to attack. The initial assault was launched in the light of the projectors. Tanks used their headlights and effected great surprise. By daybreak, the attack had progressed from 1 to 1½ miles along the entire front. The heavy artillery pounded the German rear areas continuously. By noon, General Chuikov's army was stopped before the Zeelov heights, which it could not take. It was the principal German defensive position. By the evening of the 16th, the advance had progressed from 1.8 to 3.7 miles over the entire front.

On 17 April, after a 30 minute artillery preparation, the attack was resumed against the principal defense position, which was taken during the day. By evening, the advance over a 75 mile front was slightly less than 10 miles. In the central sector, the break-through was complete. During the following days, it was necessary for the Russians to capture a considerable number of strong points, inhabited places, and forests broken up by numerous streams which had been organized into many successive defensive lines. This gave the artillery many detailed tasks in assisting the infantry and tanks and in opposing the German counter-attacks. Successive regroupments of the artillery were necessary. Early each day, a new preparation was fired over the entire front to facilitate the resumption of the attack.

By 1130 on 20 April, Berlin, which was 37 miles back of the jump-off positions at the Oder, was close enough to allow the Russian artillery to open fire on the city.

At 1000 of the 21st, street fighting in Berlin began. The fighting was carried out by assault groups consisting of 60 to 70 men (including combat engineers) assisted by one or two tanks or self-propelled guns, two to four 76-mm guns from division artillery, six antitank or regimental guns according to needs, and two or three 203-mm guns if particularly strong objectives were encountered.

At the start of each day, combined action was begun by the army artillery, which laid down indirect fire against known German artillery positions. The corps and division artillery fired on large buildings and groups of houses situated about 400 yards ahead of the points reached by the assault groups. The as-

sault groups attacked, using direct fire methods.

The streets were swept by fusillades of rifle and machine-gun fire, and the areas were mopped up, house by house. Regimental guns fired rapid, unaimed fire to create a screen of smoke and dust. The guns were sheltered in buildings and fired through breaches in the walls. Heavy guns for demolishing at short range any obstacle that was holding up the infantry were brought up under the protection of this curtain of smoke and dust.

On 28 April, the infantry forced the passage of the Spree River. The defense continued to resist furiously, even after the *Reichstag* buildings, which were defended by a battalion, were taken by the Russians.

Not until 2 May did the German garrison surrender unconditionally.

During these hard days of street fighting, the Russian artillery continuously accompanied and supported the infantry assault groups in contact with the Germans.

4-2194 The Future of Air Bombardment

Digested by the MILITARY REVIEW from an article by Air Marshal Sir Robert H. M. S. Saundby, in the "Royal Air Force Quarterly" (Great Britain) October 1949.

WHEN the Germans realized that the growing weight of Allied strategic bombing would spell defeat for them if they were unable to master it, they determined to convert practically the whole of their aircraft industry to the production of defensive fighters. The German generals, however, knew their business, and they must have felt very uneasy indeed at the prospect of having to abandon the offensive in the air. They could not fail to know that such a policy could only postpone defeat, not avert it.

Fortunately for them, two lines of scientific development offered a possible solution to their problem. One was the flying bomb, the other the heavy rocket. Neither of these weapons required high-performance airplane engines of conventional design, and neither would compete in any serious way with the resources they wished to devote to defensive aircraft. It is small wonder that they seized eagerly upon these inventions, and decided to rely upon them almost completely for the conduct of an air offensive against England.

"V" Weapons

Their plans were well laid and far-reaching. They began to build enormous structures in Belgium and the Pas de Calais, protected by reinforced concrete many yards in thickness, in which they intended to assemble and prepare the "V" weapons, and from which they meant to launch them. They planned for a huge scale of attack; some 500 flying bombs and 200 heavy rockets were to be launched daily against London and other objectives in Southeast England.

Our Intelligence Service got early information of this project. Our heavy bombers, by now capable of a high degree of penetration and accuracy over enemy territory, successfully struck at the great experimental station at Peenemunde, where the development work was being carried out, and at the factories where the weapons were being made. These attacks destroyed the great concrete structures in which the rockets were to be assembled and launched.

The success of this counteroffensive

caused the enemy to abandon his large-scale plans and rely on small launching sites, and to use natural caves for the storage and assembly of the weapons. This immediately reduced the threat to about one-third of its former dimensions, while a perpetual attack on the launching sites by Bomber Command and the Tactical Air Forces, and the smashing in of the caves by heavy bombers, still further reduced the scale of attack. As a result, the bombing effort averaged no more than about one-tenth of the planned figures, and it declined from being a dangerous threat to a serious nuisance.

Nevertheless, the attack could not be entirely stopped until the advance of the Allied armies had placed the launching sites out of range of England.

The defeat of these "V" weapons should not, however, be misunderstood. They were defeated because they were introduced—incompletely developed, and in insufficient numbers—to a situation dominated, at that time, by the heavy bombers.

Development of Rockets

There is one other significant development of which we must take notice. That is the development of rockets carried in aircraft or other vehicles. So light is rocket equipment that a *Hurricane* fighter was able to carry eight such rockets, with a striking force roughly equal to the broadside of a 10,000-ton 8-inch-gun cruiser.

Thus, we have four quite distinct and very important lines of future development: the flying bomb, the heavy rocket, the light rocket, and the atomic bomb.

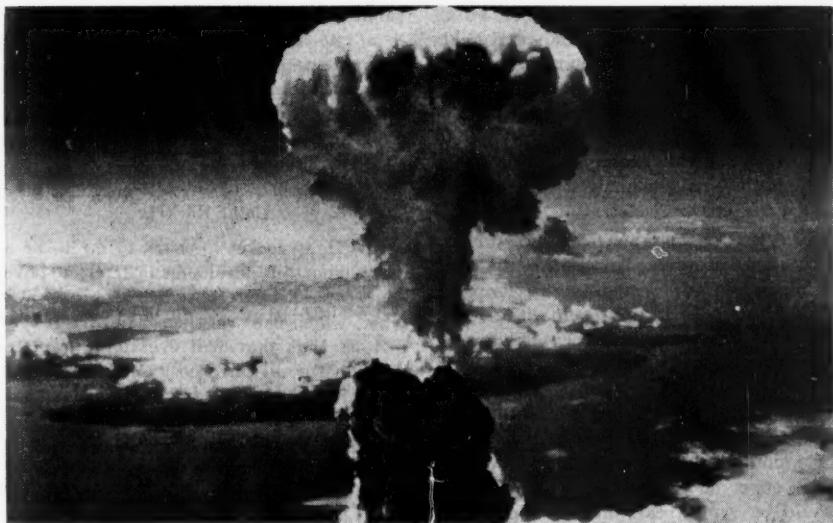
Flying Bombs

The flying bomb, as developed by the Germans up to the end of the last War, suffered from two major defects. First, it was too slow; it could be caught and destroyed by our fastest fighters. This defect could be remedied by using a more

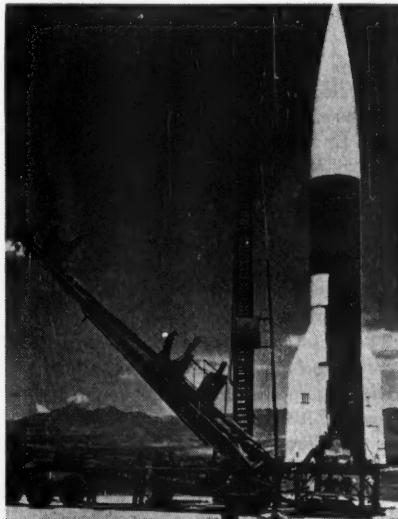
powerful propulsive agent, to be paid for by increased size and weight of the weapon, or by reduced range. Second, it depended on a pre-set mechanism to cause it to dive to earth and explode on contact, which rendered it inaccurate at long range. In fact, less than 50 percent could be relied on, even if not interfered with in any way, to fall within a circle of 2½ miles' radius from the desired point of impact, at a range of 120 miles.

No doubt such a mechanism is susceptible of improvement, but it must always be liable to considerable error owing to the difficulty of forecasting wind speeds, along the route. The magnitude of the error will, generally speaking, be proportional to the range. In this, it differs in a marked way from the humanly controlled bomber, the accuracy of which in general is dependent on many factors, of which range is by no means the most important. There seem to be two possible methods of eventually overcoming this defect. The missile can be guided from radar ground stations, much as was "Oboe" bombing in the last War, or the missiles themselves can be made to "home" onto the target.

The first method is likely to be accurate, but, like "Oboe," it is limited to a maximum range of some 350 to 400 miles, depending on the altitude of the missile. Only one missile at a time can be handled by a pair of ground stations. Thus, both the range and the density of the attack are sharply restricted. "Homing" presents considerable difficulties, owing to the problem of identifying the target. One factory or one build-up area is very like another, and I doubt whether it will be possible for a long time to produce a device which will enable a flying bomb to select and "home" onto a land target. At sea, however, circumstances seem to me to be very different, and I think that "homing" onto a ship should be comparatively easy. I can imagine a flying bomb being



Pictured here are three examples of possible future trends in aerial warfare. Above, the Nagasaki atomic bomb explosion; the bomb was delivered by plane. Below, left, two "Firebird" air-to-air missiles, mounted under the wing of an F-82. Below, right, a German V-2 type rocket being placed in firing position.—US Army and US Air Force photos.



dispatched in the known direction of an enemy ship—a great mass of metal floating on the sea—and when arriving within, say, 10 miles of its objective, the "homing" apparatus would come into play. The missile would be guided towards the ship, and an auxiliary rocket motor started, so that the missile would achieve a high enough velocity to ensure penetration.

Such weapons, against which all surface ships would be almost helpless, would make it impossible for warships or merchant ships of any size to approach within, say, 150 miles of enemy territory by day or night.

I think, therefore, that flying bombs are likely to be used for short-range attack of land objectives under "Oboe" or some similar control, or against shipping. Their effect on the exercise of sea power should be very great, and it is probable that all war vessels will have to be made submersible.

Heavy Rockets

The heavy rocket of German "V"-weapon type has a maximum range of about 200 miles. To achieve this, it attains during its trajectory an altitude of some 50 miles above the earth's surface, and a peak velocity of some 4,000 miles an hour. The German rocket had a total weight of about 14 tons, of which 1,500 pounds was the explosive charge, and about 10 tons the weight of the fuel. This fuel, consisting of liquid oxygen and alcohol, had to be pumped through the burners in less than a minute. The accuracy of the weapon was about the same as that of the flying bomb at comparable ranges.

The main characteristics of this weapon were therefore limited range, indifferent accuracy, approach at supersonic speeds allowing little or no warning, small explosive charge, and a high rate of consumption of expensive fuels.

It is difficult to see how its accuracy can be substantially improved. Nor can its

range be much increased without resorting to a two-stage process, vastly increasing its size, weight, and fuel consumption.

It would appear, therefore, that these rockets are suitable only for the attack of large targets, such as an industrial city, lying within 200 miles of the launching site.

Light Rockets

The light rocket appears to me to be a most important development, likely to have very far-reaching consequences. For aircraft, which can use them at short range, I think that they will eventually replace the gun for all purposes. As regards sea and land warfare, I am less certain; but I believe that they will prove to be a lighter, cheaper, and more formidable weapon than the gun for most purposes. They are excellently suited for providing covering fire for an assault, and for laying down concentrations of fire to slow down and break up an attack. They are ideal for close-range antitank work, and it is possible that they will largely replace the antiaircraft gun, especially if a rocket-driven weapon capable of "homing" onto an aircraft can be devised.

The saving, compared to a gun, in manufacturing cost, weight, ease of transportation, economy in high-grade steels, and other metals is most striking.

As an offensive weapon for tactical air forces, the light rocket is, for many purposes, superior to the bomb. For the destruction of locomotives and rolling stock, motor transport, shipping, especially the smaller and more mobile vessels, and aircraft on the ground, the rockets are much more accurate and easier to operate than bombs, and they are fully as effective. In my view, the light rocket has enormously increased the power and effectiveness of tactical air forces.

Atomic Bombs

And now we come to the atomic bomb.

This is a weapon of considerable weight but of enormous destructive power. It is probable that one bomb, detonated at the optimum altitude, could devastate an area of about one square mile. In addition, it would affect by flash-burn and by radioactive poisoning all who are exposed to it within a considerable radius from the explosion.

The bomb depends for its explosive effect on a fissionable material, produced from uranium ore. The production of this material, even when the process has been commercialized, requires a tremendous effort in terms of money and man power, though probably not much greater than that required to produce its equivalent in destructive effect in conventional bombs charged with a modern high explosive. But this certainly means that atomic bombs will be precious, that no nation will have plenty of them, and that they will be carefully used, after serious consideration, against those targets which are judged to be the most vital and suitable.

The American tests at Bikini Atoll provided much valuable data as to radioactivity and blast effect, and the possibilities of decontamination. But I cannot believe that it is probable that any nation will drop atomic bombs on fleet anchorages. In fact, I will go further and say that in an era of atomic warfare there will not be any fleet anchorages as such. The job of the navy will be almost entirely convoy escort and anti-submarine work, requiring a large number of small ships dispersed all over the seven seas.

Important ports, vital industrial areas, and possibly centers of government and communications will be the most probable targets for atomic bombs. The defense of such places, therefore, will be a task of the first importance. To destroy, deflect, or reduce the attack would be the primary object of our active defense. For various reasons, among which is the need for great

accuracy, I believe that the atomic bomb is likely to be delivered by aircraft operated by a human crew, equipped with the latest radar navigational and bombing aids.

The potential threat is so great that we must harness all available scientific knowledge and research to the task of improving our air defense. But some attacks are certain to succeed, and we must organize an effective civil defense to minimize the disaster if it should come.

The appalling death toll in the Japanese cities was largely due to the fact that no air raid precautions were in force. At Hiroshima, the streets were thronged with people who supposed that the two American aircraft high overhead were engaged in photographic reconnaissance. No warning was sounded, and no one took cover. It had been calculated that protection such as London possessed by the end of the last War, and 19 minutes' warning, would have reduced the death toll from 70,000 to about 7,000. So it is a very serious mistake to think that, because the destructive power of the bomb is so great, no shelter and no precautions are of avail. The reverse is true. The killing power of the bomb against unprotected people in the open is tremendous, but quite a small degree of protection secures immunity from flash-burn and radioactive poisoning, except for those very close to the point directly beneath the explosion.

Summary

To sum up, I believe that atomic bombs are likely to be used in a carefully worked-out plan, calculated to destroy at the outset the war potential of an enemy, and to bring about the collapse of civil administration. If the attack should fail, the supply of atomic bombs is not likely to be sufficient to permit its being repeated, except after a long interval measured, perhaps, in years.

What all this amounts to is that air bombardment with atom bombs, flying bombs, and rockets is now capable of such far-reaching effects that an aggressor, especially against such a country as England, is almost certain to attempt a knock-out blow from the air. London is an obvious target for such an attack, particularly if an aggressor can obtain control of the Low Countries and the Pas de Calais, enabling him to use flying bombs and rockets. Only if such an attack should fail will the safeguarding of our sea communications or overseas bases have any significance. Therefore, although navies and armies are not rendered obsolete by the developments in air bombardment, they will not come seriously into action in their own spheres until the first clash in the air is over. Indeed, land and sea forces will tend to be drawn, directly and

indirectly, into the support of the air battle in every way open to them.

Once this battle is decided, the first phase will be over. If the blow has failed, it will then be necessary to plan the second phase, which must culminate in victory. The plan will, of course, depend upon the circumstances, but the offensive in the air must be developed first. It is only when the enemy is beaten and thrown onto the defensive in the air that we can hope to take the offensive by land and sea.

This, then, is the future as I see it. On the Air Force and on its ancillary services will depend the defeat of the enemy's all-out air attacks, aimed at paralyzing us at the outset. On it, also, will depend the development of a successful air offensive, which alone can open the way for the joint air, land, and sea offensive that will lead to victory.

Why Germany Lost the War

Translated and digested by the MILITARY REVIEW from an article by Captain P. N. Ottestad in "Miltaer Orientering" (Norway) No. 18, 1949.

THE German nation has established a record that has hardly been equalled in the history of the world. In 25 years, the Germans started two world wars and lost both of them.

They suffered military defeat both in 1918 and 1945. The first time, however, it was not so evident to the German people, and the *Wehrmacht* later succeeded, through propaganda such as the claim of "the stab in the back," in restoring the confidence and faith of the average German in the country's military strength. The last time, however, there was no possibility of such an explanation. The Allied victory was absolute. This victory was due to overwhelming material superiority produced by the United States, and to the Russian masses of troops which held the Germans in check long enough for this

material superiority to make itself felt. Time, therefore, was the decisive factor.

For Germany, the problem developed as follows:

The longer the War was drawn out, the stronger Germany's adversaries would be and the more difficult it would be to win the War. The last quarter of 1941 was the critical period. At that time, Hitler committed the mistake—both political and military—that was destined to result in Allied victory.

Hitler encouraged Japan to attack the United States and, on the Eastern Front, he interfered in the operations in such a way that his forces did not succeed in taking Moscow. Hitler underestimated both the production capacity of the United States and Russia's capacity for resistance, and he overestimated his own capac-

ties in these two respects. When at their zenith, his political and military traits indicated genius, but when most necessary, they failed him. His obstinacy, his belief in his own self-sufficiency, and his lack of confidence in his generals led to his intervening in military operations. This hastened his eventual defeat, but the thing which ultimately brought about his defeat was his military and political appraisals which brought the United States and Russia into the War on England's side.

Germany's Errors

The British military writer, Liddell Hart, asserts that the cause of the Allied defeat in France in May 1940 was not the "Maginot Line complex" but rather the offensive portion of the French operations plan. By sending the French mobile divisions forward into Belgium, on the left wing, General Gamelin, the French Commander in Chief, made the German maneuver possible.

The German attacks on the Dutch and Belgium frontiers acted like a primer charge on the French and British divisions. General von Rundstedt said that the Allied drive was foreseen, and his own drive through the Ardennes thus became the other jaw of the pincers which caught the Allied forces.

Von Rundstedt declared that Dunkirk represents one of the great turning points of the War. If he had had his way, the British evacuation would not have gone so smoothly. His hands were tied by Hitler, who had given direct orders that all further advance was to cease. The only weapons that could be used were field artillery. Von Rundstedt watched the British evacuation from a spot 6 miles away, while his tanks and infantry divisions stood passively by.

Some believe that the cause of this unpardonable error on the part of the Germans was Hitler's amateurish knowledge

of the handling of military forces. Hitler received daily reports concerning the situation on the front. The increased loss of tanks made him somewhat uneasy concerning the combat-readiness of the armored divisions after the fighting in Northern France should come to an end. He decided, therefore, to hold his armored divisions back at Dunkirk, for his map showed the area around Dunkirk to be inundated and unsuited for tank operations.

Liddell Hart asserts that Hitler did, indeed, advance this argument, but finds it a very thin one. He finds it difficult to believe that Hitler permitted himself to be governed by such considerations. The German general, Blumentritt, has called attention to another cause which undoubtedly must be regarded as far more logical. He relates that the day after the armored divisions were held back, Hitler was at von Rundstedt's headquarters. He expressed himself in such a manner with regard to Great Britain that he aroused the greatest astonishment.

Hitler praised England, which he likened to the Catholic Church, and asserted that both of them were stabilizing factors in the world. All he desired from England was her recognition of Germany's position on the Continent. Hitler concluded with the statement that his aim was to conclude peace with England on a basis which that nation could accept without feeling humiliated. Hitler's decision was of inestimable significance to England, who was in one of the most critical periods of her history.

Invasion of England Abandoned

When Hitler abandoned the invasion of England, he committed his second error. Right after Dunkirk, England had only a few hundred tanks and two or three organized infantry divisions left. Thus, some are of the opinion that if the German forces had tried to cross the Channel they would have succeeded and England would

have been lost. Not all share this opinion, however.

The commander of the British Fleet said he was absolutely convinced that without control of the Channel a German invasion by ship-borne forces would be impossible. There is no doubt that the Germans regarded the entire operation as a "last resort" for forcing England into submission.

Hitler, meanwhile, grew more and more afraid that Russia would strike him in the back. This development contributed to Germany's seeking new directions of attack, and the preparations for the invasion of England gradually ceased.

The new plans taken up by the German General Staff concerned Hitler's preparations for war with Russia, and Field Marshal Herman Goering's idea of dealing a blow to the British Empire by an attack on its supply lines at sea or, more explicitly, an attack on Gibraltar.

German Mediterranean Operations

Goering's plan was to make a rapid drive through Spain and take Gibraltar from the land side. According to him, Germany had 15 divisions ready to push through the Pyrenees and 600 88-mm guns were to be used for the bombardment of Gibraltar. A division of paratroops was also to be used.

The reason for abandoning the plan was Hitler's political views. He declared to Goering that he was afraid that while his divisions were involved in fighting Spanish forces Russia would attack him from the rear.

The Italian operation against the Balkan countries also put a stop to Goering's plans.

In order to rescue his Italian ally, Hitler went to Mussolini's aid, and when Spain continued in its refusal to let German troops pass through Spanish territory, Hitler abandoned all thought of taking Gibraltar.

General Kurt Student, chief of German airborne forces, rejected the idea of obtaining supremacy in the Mediterranean with air forces. His idea was to use both air forces and paratroops, first against Crete, and later against Cyprus and Malta. Crete was conquered, but only after extremely heavy losses. These losses were so great that Hitler lost faith in the value of paratroops and no attack on Cyprus was attempted.

The Germans regarded the operations in North Africa as secondary. However, when the Italian forces were defeated, it became clear to Hitler that if he were to keep Italy active on his side he would be obliged to help.

Certain sources assert that Hitler's action was dictated by political considerations. This is undoubtedly true, for if he had seen the strategic advantage that an invasion of Egypt, followed by a drive against the Caucasus, could have led to, he would have followed his generals' advice to send four armored divisions to Africa to annihilate the British.

Hitler's forces were too small to force a German victory in Africa and his interference in Rommel's tactical dispositions at El Alamein resulted in a crushing defeat for the Germans. If the German generals had had their way and had drawn back to a more favorable position, Field Marshal Montgomery would undoubtedly have had a different and more difficult task.

Attack on Russia

The German armies attacked Russia on 22 June 1941.

Hitler's military dispositions in this campaign are described by military writers as his greatest and most decisive error. Liddell Hart asserts that Hitler's hazardous operations in Russia failed because he was not audacious enough. He hesitated in the most critical periods and lost time which he was never able to re-

gain. After this, he ruined himself and Germany because he never succeeded in reducing his losses.

Hitler counted on annihilating the Russian forces before they reached the Dnieper River. This plan did not succeed. Later, instead of driving as rapidly as possible against Moscow, he did not make up his mind what to do. When he finally decided, it was too late.

The most important cause of the failure of the German encirclement was Russia's miserable communications; the roads and railroads were not adequate.

German tanks were brought to a halt when supplies could not be brought forward fast enough, and time after time the Red Army escaped. Supply transportation was always bogged down.

Armored divisions with tracked vehicles probably could have passed the soft places and have traversed the roads, and Russia's vital centers could have been taken the first autumn.

In short, the German Army was more modern than any other in 1940-1941, but it did not attain its objective because it failed to carry out ideas that were 20 years old.

Another cause for this failure was that the German generals were too conservative.

The German plan was to encircle the Red Army with two great pincers—one outside the other. The infantry operated inside and the armored divisions outside the two gigantic arcs. The Russians were surrounded at Slorien but succeeded in escaping.

The pincers were, therefore, opened again and a new gigantic encirclement was attempted around Minsk. In spite of the fact that a large number of Russians were taken prisoner, this operation did not succeed in annihilating the Russian armies. Hitler insisted on the continuation of the pincers operations, and Guderian, who proposed that the armored divi-

sions should move straight ahead on Moscow, found himself tied down to a far slower advance.

After Smolensk was reached, there was a halt of several weeks at Desna. This was one of Hitler's most fateful decisions. Field Marshal von Bock wished to continue, but Hitler changed the direction of the advance.

In the south, von Rundstedt had command. He had broken through the Russian defense zones south of Kiev, and Hitler now saw the possibility of completing a new pincers operation which would encircle the Russians at Kiev. The operation was carried out by Guderian, from von Bock's army group, and Kleist, from Rundstedt's. As a result, von Bock was deprived of his armored forces and was forced to remain inactive for 2 months.

In October 1941, Hitler decided to continue the advance on Moscow, but it was too late. Most German generals declare that this was the greatest reason for the final German defeat. The Germans counted on a short campaign and were not ready to spend a severe winter before Moscow.

Other causes for the German defeat—according to German statements—were the Russian tactics. They systematically withdrew and avoided decisive battle. In addition, the great masses of men at the disposal of the Russians made possible a continual program of rotation and reinforcement of forces, a fact which made the German gains cost dearly. German intelligence was very deficient, and the effectiveness of the Russian forces was greatly underestimated. Hitler consistently refused to listen to anyone who described the Red Army as an able adversary.

The German air forces were also insufficient numerically, and Hitler's generals never succeeded in establishing anything more than local air superiority.

Hitler's interference in military command steadily increased. If he had left

control in the hands of his generals, and if the latter had been permitted to carry out their ideas of an elastic defense, it is possible that the Red Army would have been exhausted.

Hitler's orders led to an entire army being sacrificed at Stalingrad. Von Bock's forces were being annihilated before Moscow.

Von Rundstedt's forces were weakened by the fact that his armored forces were attacking the Crimean Peninsula while his remaining armies were moving eastward in the direction of Voronezh and the Donets River.

In 1942, Hitler made attempts against the Caucasus and Stalingrad. Both offensives failed because he could not decide on one of them at a time.

Kleist asserts that Stalingrad could have been taken without a fight in July 1942, but it was regarded as of minor importance at that time. The Fourth Armored Army, which was moving against the city, was turned southward by Hitler to help Kleist cross the Don. Kleist had not asked for help and did not desire it. Later, when the attack on Stalingrad began, this Army arrived too late to help.

The Russian campaign was Hitler's war. The clashes between Hitler and his generals were frequent and violent and led, several times, to change in command. Thus, Brauchitsch, Rundstedt, Bock, Leeb, Kleist and Mannstein fell into disfavor. These disagreements increased Hitler's distrust of the highest military leaders and led him to interfere in operations. He did not content himself with directives but gave direct orders which led to the downfall of both himself and Germany.

The United States

Perhaps the most decisive German error was Germany's continued efforts to get Japan to enter the War against England and Russia. This began immediately after Hitler had decided to attack Russia and

was the result of the German desire to get Japan to tie down the British in the East, thereby reducing their ability to take part in the fighting in Europe.

That such a policy should lead to the United States' coming in on the British side was regarded as a possibility. But this eventuality did not deter Hitler. Hitler was not impressed with the industrial capacity of the United States. Goering once said that the Americans did not know how to manufacture airplanes. He said they could only make refrigerators and razor blades.

It seems as if Hitler were of the same opinion. He quickly learned otherwise. All through 1939 and 1940, Hitler had attempted to conduct his operations in such a way as not to provoke the United States. But when Roosevelt was re-elected President in 1940, Hitler was certain that it was impossible, in the long run, to keep the United States out of the War.

It is very possible that Hitler was right in this. If he had been able to induce Japan to limit its military activities and direct its attacks on Englishmen exclusively, it is also very probable that it would have taken the American Congress a long time to finish its debates and decide what the United States would do.

Furthermore, it is to be assumed that a policy such as indicated could have resulted in a delay in American deliveries of Lend-Lease equipment, which could have caused the war in Russia to take a different turn.

There is a difference of opinion concerning these theories. Various individuals declare that the attack on Russia was really Hitler's *greatest* error, but his policy with regard to the United States was his *decisive* error. Furthermore, it is asserted that the declaration of war by the United States was the thing of greatest weight in the Allied favor and that American production was the factor which, more than any other, led to Germany's defeat.

Why Were Errors Committed?

It has been said that the cause of these various German errors lay in Hitler's amateurish handling of military problems.

Liddell Hart, however, after his conversations with the German generals, seems to have come to another conclusion with regard to Hitler's much talked-of dilettantism.

One is tempted to accept Liddell Hart's view, especially when one considers how often Hitler was right and his generals wrong during the first period of the War.

Germany's attacks on Poland, Czechoslovakia, and Western Europe, were carried out on Hitler's orders, against the counsel of his generals, and in spite of their protests. Thus, Hitler showed that his military and political insight was of a higher order than that of his generals.

Hitler's insight into strategic problems was first displayed when he demanded that the attack on Poland should begin without previous mobilization.

This demand was contrary to all military tradition and there was no lack of objection on the part of the German generals. Hitler, however, brushed all objections aside, saw to it that the order was carried out, and secured a place for himself in history as the first to make use of the surprise factor in strategic warfare. He caused the "declaration of war" to fall like a bolt from a clear sky.

The original plan worked out by the German general staff provided for a cautious and relatively modest operation. The main attack was to start from Silesia, proceeding northwest in order to defeat the Polish frontier divisions. The taking of Warsaw was not part of the plan.

Hitler decided, however, that the plan should be altered. He ordered that a strong left wing should be formed which should attack north of the Vistula and through the corridor from East Pomerania.

The favorable results to which Hitler's interference led do not point to dilettantism. This is even more apparent when one has a clear understanding that Hitler's directives must be regarded as a correction of the professionals' plan.

Hitler's boldness is amazing when we learn today that the Germans, when the attack on Poland began, possessed only five divisions for covering themselves against an eventual attack from the west. The German infantry and artillery forces were ridiculously small, and the Navy had only 43 submarines.

Hitler had studied the British and French military leaders and had come to the conclusion that they would remain passive. He was right.

The German generals expected that the Allies' 100 divisions would overrun Germany at an opportune moment of the War, but the attack did not materialize. After a while, Hitler knew that he was superior to the German generals when it came to estimating military and political situations.

Hitler had never had particular confidence in the generals and his continual clashes with them led to an increasing lack of confidence. The favorable results to which his intervention in the conduct of the War led gave him steadily increasing self-confidence. Together with his innate obstinacy, this made it impossible for the generals to stop him when his fancy and belief in his own self-sufficiency, during the latter phases of the War, caused him to over-extend.

Hitler had a predilection for anything that was new and possessed elements of surprise. He saw very early what influence the air arm and armored divisions would have on the outcome of the War, and he had no patience with the older generals who had grown up with the orthodox weapons, and had difficulty in adopting new ideas.

This led to the rapid rise of younger

officers, especially those in the armored arm. In addition, Hitler was very alert to new ideas; if the authors of these ideas could succeed in arousing his enthusiasm, they were sure of seeing their ideas carried out.

A clear example of this was the campaign in the West in 1940.

The original plan was worked out by the General Staff under Halder. It followed, in general, the same formula as the attack of 1914.

The main weight was laid on the right group, which was to drive through Belgium and from there against the British and French forces in Northern France.

Von Rundstedt, in the center, was to play a far lesser role. His two armies were merely to prevent an enemy breakthrough in the Ardennes.

Von Leeb—also with two armies—was to demonstrate on the left flank and tie down the French troops in the Maginot Line.

All armored divisions were concentrated on the right wing, where von Bock was to be in command. It is clear today that if the plan had been carried out it would not have led to any immediately decisive result.

General von Mannstein considered the plan too obvious and repetitious. He proposed, therefore, that von Rundstedt's army group be made the strongest, that the armored divisions be transferred to it, and that the main attack be made through the Ardennes in the direction of the French coast. This plan was intended to cut off the Allied mobile forces which probably would rush into Belgium.

Von Mannstein's military superiors were not especially enthusiastic about the plan, which was regarded as too risky. But behind their backs, von Mannstein went to Hitler, who received the idea with enthusiasm.

Hitler's successes during the first years increased his popularity with the masses,

and it was continually more difficult for his adversaries to oppose him. The generals who had opposed him were therefore more and more silenced.

The German generals were, unquestionably, far better qualified than Hitler and stood on a level with those of any other nation. Liddell Hart is of the opinion that they could have been better if they had had broader views and deeper understanding.

It is quite true that the German generals committed many errors, especially during the first year of the War, but it is equally true that in later years, and especially during the Russian campaign, they saw the situation far more clearly than Hitler. If the generals had had their way, it is not improbable that the War would have ended much more favorably for Germany.

It is reasonable to assume that if the Navy had been able to see how important submarine warfare was to become, it would have had a few hundred submarines at the beginning of the War instead of only 43.

It is claimed that the German Air Force was too unbalanced, that it had too many dive-bombers and too few fighter aircraft. This led to the English winning the "Battle of England" and the Allies later succeeding in winning air supremacy over large parts of German-occupied Europe.

German jet aircraft and the "V" weapons came too late, and Germany lost the race for the atom bomb.

The German intelligence service was poorly organized and of little effectiveness. It seemed actually to produce information as Hitler desired it to be.

Hitler's order that all conquered territories should be defended to the last man led to the sacrifice of the German *Afrika Korps* in North Africa, to the annihilation of von Paulus' army at Stalingrad, and to the fact that hundreds of thousands of experienced soldiers were

killed, unnecessarily, as a result of the Russian attack.

It was also this order that led to the fact that when the invasion occurred in Normandy the German forces were spread over so great an area that a concentration of forces was impossible.

A report by the *Oberkommando der Wehrmacht* shows that in November 1943 the German forces disposed outside the Eastern Front were distributed as follows:

Finland -----	177,000
Norway -----	380,000
Denmark -----	106,000
Italy -----	396,000
The Balkans -----	612,000
France -----	1,300,000
Total	2,971,000

On the Eastern Front, the Germans had 4,130,000 men. The Russians had a total strength of about 5,500,000 men, exclusive of recruits and special winter divisions.

Since the decisive battles had to be fought in the East and West, it is clear that this distribution of German forces was extremely disadvantageous.

Conclusions

Germany lost the War because she lacked the necessary resources for winning it. She had neither sufficient men nor matériel. Only under wholly abnormal circumstances could Germany have had any hope of winning a world war.

Hitler believed the favorable moment for an attack existed when he went into Poland. It is quite possible that he was right, but it is equally certain that, taking everything into consideration, he played his cards so badly that he lost his chance for complete victory.

When the German armies abandoned their effort to reach Moscow in 1942, Germany's fate was sealed. The whole matter was only a question of time. This became still clearer when they did not succeed in throwing the Allied forces back from the Normandy beachhead.

After this period, Germany's continuation of the War must be regarded as completely meaningless. That the War was continued until May 1945 may be described truthfully as Hitler's greatest crime against his nation.

The *Graf Zeppelin*, German Aircraft Carrier

Translated and digested by the MILITARY REVIEW from an article by Rear Admiral Adam in "La Revue Maritime" (France) August 1949.

ON 8 December 1938, the *Deutsche Werke* at Kiel launched the *Graf Zeppelin*, the first aircraft carrier of the German Navy, on which construction had been started 2 years previously.

With a length of 737 feet and a beam of 88½ feet, it was to have a displacement of 21,214 tons and its geared turbines were to give it a speed of 32 knots. The armament was intended to be 16 150-mm guns, 10 105- and 22 37-mm antiaircraft guns. It was to carry about 60 planes, mainly *Messerschmidt 109s* and *Junkers*.

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At the beginning of World War II, little progress had been made toward completion of the carrier, and on 10 October 1939, during one of his conferences, Hitler inquired of the commander in chief of the Navy whether he considered it necessary to complete it. The reply was in the affirmative: it might be needed for accompanying the 10,000-ton cruisers on the high seas and operating with them. In addition, German experience with a new type of vessel would be of great value in the future.

The rapid development of ground opera-

tions, which seemed to indicate a rapid conclusion of the conflict, changed the aspect of the problem. At Hitler's conference on 29 April 1940, the commander in chief of the Navy himself proposed stopping construction on the carrier, giving as his reasons that the carrier could not be finished before the end of 1940 and that it would require 10 additional months to install its guns. Its antiaircraft guns had already been used elsewhere and delivery of the fire direction apparatus for the principal batteries was considerably behind schedule. In short, taking into consideration the necessary trial runs, the *Graf Zeppelin* could not be placed in service before the end of 1941. Moreover, the 150-mm guns intended for it had to be used in Norway for arming coastal defense batteries there. The carrier appeared doomed until 11 July 1940, when Hitler declared, contrary to all expectations, that it was to be finished.

In the meantime, the problem had become more complex. On 22 May 1941, the commander in chief of the Navy reported that 8 more months would be required to complete the carrier under the most favorable conditions. At the same time, the Navy chief made inquiries concerning the vessel's plane complement, a matter of concern to the commander in chief of the Air Force.

The Problem of Planes

On 25 July 1941, Hitler gave his consent for the continuation of the work after the end of the Russian Campaign. On 13 November 1941, the Naval General Staff asked to be assigned a sufficient number of planes suitable for this type of vessel. This request met stubborn opposition from Goering, who was not at all interested in the limited production of aircraft of a special model suitable for purely naval employment.

According to Goering, these planes could not be delivered before the end of

1944, and not even then unless conditions were favorable. It was up to Hitler to make a decision. Hitler contented himself with saying that he was certain that the Air Force would be able to assist, temporarily, with modifications of other models.

This was not an order, but only a vague suggestion. It did not satisfy the Navy, which made its needs known at a conference on 12 March 1942. The Navy needed at least 50 *Messerschmidt 109 F* fighters, 4 *Junkers 87 C* dive-bombers, and 13 *Fieseler 167s* for the tests. The Air Force believed it was impossible to continue the construction of these types of aircraft. The Navy insisted, however, and succeeded in getting Hitler to order the commander in chief of the Air Force to use his influence in working out the problems presented by it. While an order, it was not very definite.

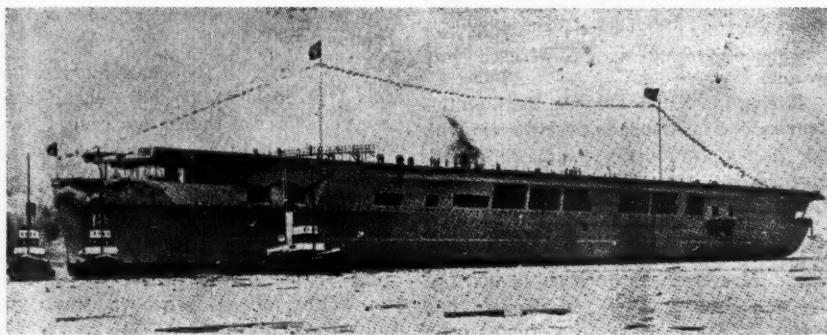
On 13 April 1942, there was another conference. It was brought out that the hull of the *Graf Zeppelin* could not be finished and the engines installed before the summer of 1943. Auxiliary equipment had not been received, or was being employed elsewhere. It was necessary to add an external caisson for increasing floatability in case of damage in battle. Fuel storage capacity had to be increased, the range of action being inadequate. Installation of more powerful deck catapults was absolutely necessary in view of the weight of the modified aircraft that the Air Force would be able to furnish. It would take 2 years to design, build, and test planes—18 months if it were possible to modify aircraft already existing.

As a result of all these requirements, the *Graf Zeppelin* would not be able to enter service before the winter of 1943. Moreover, the Air Force showed the greatest unwillingness to produce planes necessary for the tests. The Air Force claimed that, if the Navy continued in its demands for special planes, series production could

not begin before 1946. The Air Force again proposed to modify *Messerschmidt 109s* as fighters and *Ju 87 Ds* as dive-bombers.

The Navy General Staff then made the following objections: the flight deck and elevators would have to be reinforced and the "hooking" device for landing the planes would have to be modified. The landing speed of these planes was too great and the *Ju 87 D* was very bulky. Handling the latter on deck would be a slow and delicate task. In short, torpedo planes, the type which the Navy preferred, were not considered in this program be-

at the conference on 13 May 1942, because Hitler had decided that the liners *Europa* (54,904 tons gross tonnage), the *Potsdam* (19,293 tons), and the *Gneisenau* (20,065 tons) would be converted into auxiliary carriers. Plans were to be ready in 3 months and work was to take 12 months after the necessary material became available. For the first time, Hitler expressed the opinion that large surface forces could not operate without air protection. It was a little late to discover this, and his decision to sacrifice the *Graf Zeppelin* in favor of mediocre substitutes was lacking in logic to a disconcerting degree.



The German aircraft carrier *Graf Zeppelin* was launched before the start of World War II but was not completed to the point where it could be used in action.

cause Goering and his associates were entirely uninterested in them.

There was need of reviewing the entire matter again unless all thought of completing the carrier were to be abandoned. This was the alternative which the commander in chief of the Navy put squarely up to Hitler. The latter believed that it was necessary to have torpedo planes and that it was important that future carrier-based aircraft should be at least equal in performance to those of the Allies. But he did not make a decision.

Conversion Program

There was no talk of the *Graf Zeppelin*

However that may be, the research agencies began work, and at the conference on 15 June 1942 it was announced that the plans would be ready in a week. The number of planes planned for was as follows:

Europa: 18 bombers, 24 fighters; *Potsdam*: 8 bombers, 12 fighters; *Gneisenau*: 8 bombers, 12 fighters.

On 26 August 1942, the Naval General Staff pointed out the possibility of re-converting the French liner *De Grasse* (20,396 tons gross tonnage) in place of the *Gneisenau*. The plan does not appear to have been very definite, however, for on 22 December 1942, the Naval Staff reported that the conversion of the heavy

cruiser *Seydlitz* and the liners *Potsdam* and *De Grasse* into auxiliary airplane carriers could be started with a small supply of materials. Supplies assigned to the Navy had to be reduced during the first quarter of 1943. The *Europa* and the *Gneisenau* were finally converted into troop transports.

Nothing more was done about the *Graf Zeppelin*. At the conference on 11 January 1943, Hitler again manifested an interest in the three auxiliary carriers, on which no work appears to have been started. From that point on, the large surface units were gradually disarmed, and all naval construction effort was concentrated on submarines. The matter of the carrier disappeared from the conference programs.

During their 1945 advance, the Russians found the *Graf Zeppelin* near Stettin with her hull three-fourths completed. Work had obviously been abandoned for a long time.

This is the unfortunate story of the only airplane carrier the German Navy would have been able to place in the line. Its sister vessel, the *Peter Strasser*, had been abandoned on its construction slip in the shipyard at Kiel since the beginning of the War.

It cannot be denied that serious difficulties stood in the way of the completion of the *Graf Zeppelin*. They were not insurmountable, however, and could have been overcome if Goering, even though possessing only a limited understanding of the Navy's needs, had possessed a greater spirit of co-operation. He manifested both lack of understanding and ill will in regard to the whole aspect of naval aviation. At no time did Hitler, although jealous in the matter of authority, attempt to impose his will on the all-powerful chief of the *Luftwaffe*. One may even ask whether Hitler himself ever realized the value of carrier support in naval operations.

As a matter of fact, a single vessel of this type could hardly have changed the general aspect of things, nor could it have counterbalanced the crushing Allied superiority. It would, however, have been of great value to the raiding forces which the German Navy sent into the Atlantic to attack commercial shipping. If the *Graf Zeppelin* had formed a part of the *Bismarck-Prinz Eugen* group in May 1941, the operation which ended with the loss of the *Bismarck* might have had a different ending.

Morale

Digested by the MILITARY REVIEW from an article by Captain P. A. Mayer in the "Canadian Army Journal" (Canada) November 1949.

WHAT is morale? We have been told often that it is a mental and moral quality, but few people have ever attempted to define morale in such a way as to establish its true relation to the individual soldier. Morale implies a stern refusal to succumb to fear; it also enhances the determination to meet discomforts and dangers and still carry on. A high morale maintains the human dignity; it enables

the soldier to overcome both fear and fatigue. The main basic factors of morale are: leadership, discipline, comradeship, self-respect, and devotion to cause.

Leadership and Training

All men are afraid. In fear, they band together and look for guidance, seeking the leader who makes the decisions. The leader is the dominant motive force which

drives the men to their feet and makes them advance against the enemy's positions. The leader inspires them to action. The men recognize the quality of decision which they may not have if they are bound by natural fear; whether the decision is right matters little at the time; the important thing is that the decision has been made. The leader's men will then follow him and they will fight. On the other hand, indecision means hesitation and this gives natural fear a chance to set in.

The power of decision comes from the leader's ability to remain calm in a crisis; calmness prevents panic. Field Marshal Montgomery once said:

"The leader must be less fearful than his men. He need not be impervious to fear, since men require a human figure to lead them. What he must do is to radiate an atmosphere of confidence which will show his men that he is less afraid than they. He must have the moral courage to stand firm when his men are wavering. In this respect, they will judge him by his power of thought and action in a crisis. Fear destroys the faculty of thought and paralyses action. The leader must continue to think longer than his men, and his thoughts must lead to action. The leader's greatest asset is the ability to act normally in abnormal conditions, to continue to think rationally when his men have ceased to think, to be decisive in action when they are paralyzed by fear."

A man is selected to lead because of his particular characteristics which tend towards leadership. These characteristics are then developed by giving him responsibility. This is calculated to impress upon him the tremendous trust which others have in his ability. He is made to realize that he has the affairs and lives of many others under him to consider. This feeling of responsibility is bound to develop his power of decision when a crisis occurs.

Discipline and Fear

One of the aims of discipline is the conquest of fear. Fear may come to a man through his imagination. Discipline fortifies the man's mind against fear because it induces implicit obedience—instinctive action. Fear may also come upon the soldier when he is given time to brood, i.e., an idle period during which fear attempts to reduce a man's courage and make him nervous and uncertain. Discipline acts as an insulator to the influence of fear. It keeps a man's thoughts within the restricted channels of his own task at hand and thus governs his self-control.

The basis of fear is danger against which the majority of men will protect themselves quite naturally. A man becomes afraid when he sees that he is confronted by greater power. If he loses his individual feeling and feels himself as part of his regiment or division, he sees everything in a larger perspective. Discipline binds him to something much larger than himself, and much more powerful. A man fears the unknown, the night, the fog. If he knows he is part of a group and feels that he is not alone, his strength will stand.

Discipline is intended to unite the group and to make a group obey as one man under all sorts of conditions. To quote Field Marshal Montgomery again:

"Discipline helps men to display fortitude in the face of fatigue and discomfort, while at the same time it helps them to conquer fear. It enables them uncomplainingly to triumph over difficulties which would have overcome them in times of peace. This constancy in enduring hardship and fatigue is the quality which is most frequently required of the soldier. Individual fortitude and corporate courage are twin products of discipline."

Soldiers must not be made to advance because they fear the consequences if they do not do so. Some men will advance to

fight only for this reason, but they are the weakest ones who will not show up well in the close-quarter encounter. Men must be welded together, united by instant obedience to orders. This sort of union will result in a steady group, which will be strong enough to carry each member of it through dangers which, if alone, he might not want to face. In this way, then, is comradeship promoted.

The spirit of comradeship begins at the lowest level—the section and the tank crew. Thus, a certain affection or fellow-feeling grows.

Mutual trust produces good will and a feeling of interdependence. Comradeship reduces fear, for it will eliminate loneliness. Help is near when friends are near. That thought alone lends strength to the individual and raises his determination to do his share. All men have a touch of nobleness; comradeship will bring it out. The demands of friendship with all its warmth and affection will steady a soldier when danger is near, it will strengthen him in battle and charge his self-respect.

Self-Respect

This implies the maintenance of a high personal standard of behavior. The NCO maintains this aspect of discipline, the officer encourages and inspires it. The soldier must be treated with humanity and controlled by discipline.

Efficiency makes for self-respect, i.e., a man's personal pride is affected when he completes a difficult task. When a soldier knows he is trusted, he feels he is a good soldier and he wants to become more efficient. Thus, he will acquire confidence to work and fight. It is the officer's job to let men know that he trusts them. Without self-respect, good morale is not possible.

Devotion to a Cause

Although soldiers are not necessarily crusaders, officers and leaders must know

what they fight for so that they can lead vigorously. Major General Wingate, of Burma fame, was a good example of this; he knew what he was fighting for and he preached his cause to his men. The soldier advances to fight because his regiment is ordered to do so, and either fights well or badly according to the presence and strength of the other factors previously mentioned. Some men may fight for the cause only and this factor may in some cases over-ride all the others. Devotion to cause must, however, be cultivated amongst all ranks.

Contributory Factors

It must be remembered, however, that there are several other important factors which assist in keeping up morale. For instance: success in battle is widely recognized as a morale builder. So is the regimental spirit, that spirit of men working, living, and fighting together. Good personal administration, a cornerstone to personal contentment, is most important. The soldier's life from day to day must be well organized—his food, mail, leave, welfare—so as to keep his mind off any ideas which distract him from his military duty.

Lastly, the publicity of the soldier's effort must not be ignored. The man who fights with rifle and bayonet should not be referred to in the same terms as the clerk at a corps headquarters, nor should the platoon or company commander be placed on the same level as an administrative officer at a divisional headquarters. There should be a sharp distinction between the men who risk their lives in combat and those who do not. The fighting soldier who is glorified and convinced of his own importance is invaluable. He will fight hard! He will not give in. He will do his duty. The development of morale depends upon the training of our leaders, a high standard of discipline, the encouragement of comradeship, and the precious quality of self-respect.

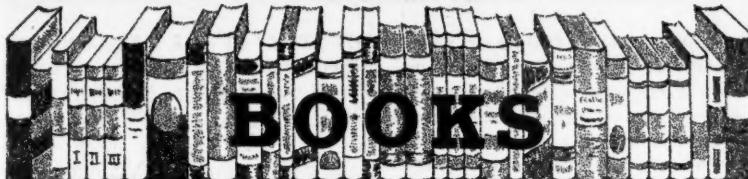
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FOR THE MILITARY READER

DECISION IN GERMANY. By General Lucius D. Clay. 522 Pages. Doubleday & Co., New York. \$4.50.

Decision in Germany is a forthright, dispassionate account of the complex problems which faced United States Military Government in Germany from 1945 to the early part of 1949. It is a documented, matter-of-fact account of the fight to achieve democracy in Germany, and of the events which have resulted in the current chasm between the East and the West in Europe.

No living American is better qualified than General Clay to tell this story, for he was the American Military Governor during this vital postwar period. His book is the record of how he went about accomplishing this most delicate assignment.

Through the War in Europe, General Clay had served in Washington as Assistant Chief of Staff for Matériel and Deputy Director for War Mobilization. He anticipated a combat assignment in the Pacific, but suddenly found himself on the way to Europe charged with the job of organizing the American zone of occupation. With few and unrealistic instructions, and even a "rival" organization in G-5 section of SHAEF to contend with, Clay's mission was beset with difficulties.

Clay seems to have entered his task with a more optimistic view of the possibilities of getting along with the Russians than many of his contemporaries.

The various meetings of the Allied Control Council, of which his book is an excellent record, soon dispelled this optimism, though Clay's patience under most aggravating situations is evident throughout the book.

The breakup of the Allied Control Council by the walkout of the Soviet representatives, and the Soviet political offensive which followed, was not unexpected, Clay reveals. The decisions made at that time, and Clay's determination to hold Berlin under all circumstances, are matters which may well have important results far beyond our times.

"If we withdraw," Clay said, "our position in Europe is threatened. If America does not understand this now, does not know that the issue is cast, then it never will and communism will run rampant. I believe the future of democracy requires us to stay . . ." Clay held this view when the question of remaining in Berlin was being discussed in Washington.

The highlight of General Clay's book is his account of the Russian blockade of Berlin, by which the Soviets sought to win control of the former German capital or to prevent the organization of a West German state. The airlift which saved the city and thwarted the Russian intentions is already well-known history, but Clay adds many details about it that lend much interest to his book.

In the first days of the occupation, Clay conceived that the most pressing problem was to get Germany through the first

postwar winter without famine or widespread disorders. This may have been done without too much concern for other pressing problems—such as denazification. But the progress that at least a large part of Germany has now made toward democracy can be traced to General Clay's firm stand and wise guidance.

Some of the documentation in Clay's book, and the many technical subjects which he treats, may make his volume heavy going for many readers. Its calm tone and lack of emotionalism is in sharp contrast to some of the books that have been written on the postwar period. But the book covers the wide range of political, economic, and financial problems that have marked the occupation, and its value is immeasurably increased by the detailed attention which General Clay has given these subjects.

AN ENCYCLOPEDIA OF MODERN WORLD POLITICS. By Walter Theimer. 696 Pages. Rinehart and Co., New York. \$5.00.

Anyone who must keep up with current events will find this one-volume encyclopedia an excellent reference work or a valuable addition to his personal library. The scope of the book is worldwide. It has essential information about all countries and their various systems of government, political terms, and many of the trends and problems of contemporary affairs. There are biographical sketches of many of the world's political leaders.

THE RAMPARTS WE GUARD. By R. M. MacIver. 152 Pages. The Macmillan Company, New York. \$3.00.

A book on democracy by a Professor of Political Philosophy and Sociology at Columbia University.

UNITED STATES SUBMARINE OPERATIONS IN WORLD WAR II. By Theodore Roscoe. 577 Pages. United States Naval Institute, Annapolis. \$10.00.

THE STORY OF THE MEXICAN WAR. By Robert Selph Henry. 393 Pages. The Bobbs-Merrill Company, Inc., New York. \$4.50.

This is a detailed account of the Mexican War that presents much new material and a viewpoint that differs widely from the evaluation of the war which has prevailed for the last hundred years.

MEXICO: The Struggle for Peace and Bread. By Frank Tannenbaum. 293 Pages. Alfred A. Knopf, New York. \$3.50.

A record of Mexico from 1910 to 1946.

BRAZILIAN CULTURE. By Fernando de Azevedo. Translated by William Rex Crawford. 562 Pages. Illustrated. The Macmillan Company, New York. \$12.50.

AIR POWER AND UNIFICATION: Douhet's Principles of Warfare and Their Application to the United States. By Colonel Louis A. Sigaud. 119 Pages. The Military Service Publishing Company, Harrisburg, Pa. \$2.50.

HOOD: Cavalier General. By Richard O'Connor. 316 Pages. Prentice-Hall, Inc., New York. \$4.00.

THE CONFEDERATE STATES OF AMERICA, 1861-65. By E. Merton Coulter. 644 Pages. The Louisiana State University Press, Baton Rouge, La. \$7.00.

THE ORIGINS OF MODERN SCIENCE, 1300-1800. By Herbert Butterfield. 217 Pages. The Macmillan Company, New York. \$2.50.

HALF SLAVE, HALF FREE: This Divided World. By Hallett Abend. 304 Pages. The Bobbs-Merrill Company, New York. \$3.00.

WHIRLWIND: An Account of Marshal Tito's Rise to Power. By Stephen Clissold. 245 Pages. The Philosophical Library, New York. \$3.75.